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ORIGINAL ARTICLES.

CRITIQUE OF MACROSCOPIC EXAMINATION OF SPECIMENS REMOVED IN THIRTY-TWO CONSECUTIVE LAPAROTOMIES.

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(*Continued from page 46*).

Case 9.—Age 24. Puberty at 11; menstruation regular but quite profuse, lasting about seven days. She was very pale and anemic. Menstruation was very painful for four days and compelled her to be in bed two days. Last period flowed for two weeks. Has long had leucorrhea which has distinct odor and is yellow. She is tender on pressure in pelvis, especially on left side. She was occasionally sick in bed for two months at a time and had so much pain that much morphin was used. Two years ago she had two abortions and since that time she has been ill with pelvic trouble. I sent her to the Woman's Hospital and under rest and hot douches the exudates (size of a large apple on left side) nearly all disappeared. A renewed attack of pelvic trouble while in the Hospital induced me to operate. The recurring exudates were deposited on the left side at each attack. The diagnosis was salpingitis of gonorrheal origin; physicians had treated her husband for several years for gonorrheal discharge from the urethra. I operated at the Woman's Hospital Oct. 4, 1892, with the assistance of Drs. White and Shibley, removing both appendages. She made a very good recovery. Drainage for two days.

The specimens were of peculiar interest, as pus was found in the interior of one ovary on cutting it open, so that gonorrheal virus had infected the ovaries. Both ovaries were cystically degenerated; some of the cysts were three-quarters of an inch in diameter. The tubes had carried the infection to the ovaries and infected them. The ovaries were covered with marks of old and recent inflammation. The tubes were both similar. The perisalpinx was richly covered with flakes of lymph, and organized exudates, old and recent. The peritoneum covering the tubes was slightly thickened. The *musculature* was not visibly changed. The endosalpinx showed the chief attraction. Its folds were swollen and very abundant. The lens showed no break in the mucous membrane. The swollen, edematous tubal plicæ were so large and numerous that the tubal lumen was packed quite full and she had a good deal of menstrual pain. It would be difficult to force the menstrual fluid through the tube, and the irritation would induce considerable tubal peristalsis or tubal colic. In this case the gonorrhea had advanced through endometrium and endosalpinx where it makes a distinct home in the cylindrical epithelium of those two membranes. Now since the home of the gonococcus is in (glandular) cylindrical epithelium, it can easily affect the ovary, for the ovary is covered by germinal epithelium (glandular), and then the gonococcus advances to the membrana granulosa which is typical glandular cylindrical epithelium. The membrana granulosa thus becomes infected by the gonococcus and soon becomes cystically degenerated. The Graafian follicle then becomes pathological. Again, to show that the infection went out at the tubal ends the parovarian in each broad ligament was distended. Kobelt's tubes were enlarged the size of peas. Five pedicled stalks existed in one parovarian.

Then, in general, ovarian and parovarian cystic degeneration is a secondary disease and derived from infection carried to them by the tubes. The pathologic condition removed from this woman has restored her to usefulness and health.

Case 10.—Mrs. S., age 40. Four children. Ill two years, since birth of last child. This woman came to the Woman's Hospital, sent by Dr. Miller. She had incontinence of urine and I treated her for two months with bladder douches and drugs. She did not improve. I dilated the urethra and explored with the finger but found nothing and it did not help her. The whole nervous system was examined but no defect discovered. The uterus was bound to the left pelvic wall and she had salpingitis. I finally concluded, after two months of treatment, that the incontinence of urine was reflex from the old pelvic disease. On Jan. 18, 1893, I removed the appendages assisted by Drs. White and Shibley. The pelvis on the left side was found full of exudate and the uterus was held down in Douglas' pouch by about twenty organized bands. The uterus was freed. No drain was employed. She recovered quite well and the bladder improved. The old organized exudates accounted for the bladder paralysis by undue pressure on the sacral nerves, especially those which supply the bladder.

The specimens show that around the abdominal tubal ostii, inflammation had spread very wide. The tubes were extraordinarily long with wide lumen. The perisalpinx had also recent adhesions on it. The *musculature* of the tube was slightly atrophied. The endosalpinx showed the chief lesion of disease. It was extremely atrophic. The lens revealed in the ampulla three large tubal plicæ which extended right to the tubal ostium abdominale. All the endosalpinx except these three plicæ was atrophied.

The folds had sunk down two-thirds of their original size. No solution of continuity could be found in the endosalpinx. This atrophy and some dilatation of the tubal lumen made the tube appear unnaturally large in caliber. No doubt the large tubal lumen enabled the infection to pass easily into the peritoneal cavity and to infect the ovaries.

This case confirms a discovery I made in investigating tubes of man and animals, which was that the lumen of the left tube is greater than the right, and that accounts for the fact that women are ill seven times out of ten on the left side. These tubes show very small abdominal ostii. The ovaries were cystically degenerated. The parovarian was normal and contained some fourteen vertical tubules. The trouble arose from septic matter passing through the tubes at the last puerperium, two years previously. It was not gonorrheal as it had fairly recov-

ered, and only left solid adhesions which require many years to absorb.

Case 11.—Mrs. M. No children; age about 36. This woman had severe pain at menstruation and lost so much blood that she was a neurotic wreck. She had salpingitis. I operated on her May 1, 1893, at the Woman's Hospital, assisted by Dr. Stillians, whose patient she was. She made a good recovery. No drainage.

The tubes have the most typical appearance of convoluted, contorted or spiral angulation I ever saw. They are both alike and so twisted and rolled that at points they look double. The perisalpinx is considerably thickened. The peritoneum does not dip down into the depressions between the kinks of the tube. The *musculature* of the tube is slightly atrophied. The endosalpinx is considerably shrunken and atrophied. No solution of the continuity exists, and the lens in excellent light reveals no epithelial denudation. I wish here to call attention to a band running along the upper border of the perisalpinx. I never saw it described in any book, nor have I ever heard any one mention it. The only way to observe it well, is to put a typical specimen of convoluted tubes in pure alcohol, and as the alcohol shrinks the specimen, the band will show itself plainly running along the upper border of the tube in the perisalpinx. The band resembles exactly the tænia coli; or one of the bands which run along the colon, which give the colon its sacculated appearance. It is also shorter than the colon. The band running along to top of the tube is shorter than the tube by about the same proportion as it is on the colon. Now this band has a share in convoluting and twisting the tube; I will call it the *tænia tubæ*. Under the lens the band is composed of connective tissue.

I have observed this band (tænia tubæ) previously, but on searching anatomy I can not find it described. I have always found the tænia tubæ well made in the most typically convoluted tubes. It appears to shorten the tube in some cases one-sixth of its length and to throw the tube into convolutions. These spiral tubes are quite frequently found in women with tubal colic or pre-menstrual pain. By applying a powerful lens on the endosalpinx in bright sunlight another point is revealed, to explain pre-menstrual pain or tubal colic. For at the various angles of the bent tube the tubal plicæ lose their parallel appearance and are thrown into whorls, so that the ordinary current of fluid passing through the tube at the menstruation will be retarded and obstructed. In these whorls of tubal plicæ a secure nest may be obtained for ectopic gestation. The cilia all bend toward the uterus and the tubal peristalsis is also toward the uterus, and thus the cilia and peristalsis induce a current of fluid toward the uterus at every monthly. The fluid arises from a congested endosalpinx. The spots of denuded epithelium, the tubal hernia, the depressions in the endosalpinx and the tubal plicæ whorls all may have a share in lumen ectopic pregnancy.

So far, ectopic gestation has not been demonstrated in animals below man. The parovarian was cystic; as many as twelve cysts could be counted in one; nearly all were dilatations of Kobelt's tubes. Fifteen vertical tubes were counted. The ovaries were normal, with the exception of three to five pathologic Graafian follicles found in each ovary, filled with cheesy matter. In this woman the old gynecologic fad of "ovaritis" did not exist, in fact, but the tubes were the cause of her sickness. The diagnosis in her case was salpingitis, pain (excessive peristalsis), hemorrhage.

Case 12.—Mrs. H., age 38. Two children; four miscarriages. Date of last pregnancy nine years ago. Menstruation regular, no pain, lasting four days. Married at 16 years. Four years ago had pain in right side, and one and one-half years ago noticed a swelling in right side. She had a myoma which had worked down between the bladder and vagina. It was the size of a hen's egg. I extirpated it per vaginam after the laparotomy, which I did at the Woman's Hospital, assisted by Drs. Shibley and White. Drain tube was used. She made a good recovery but a slow one, and left in four weeks.

The tumor found in the right side was a dermoid, size of a cocoanut. It had no pedicle, but was rotated off its axis and lodged and nourished in the lower border of the omentum. This accounts for her attack four years ago when, no doubt, the dermoid twisted off its axis which likely lay in the ovary, as nearly all dermoids arise in the ovary. When it twisted off its axis it did not become gangrenous because it was excluded from air. It nourished from surrounding organs because its twisting off created an irritation (mechanical), and that caused an exudate which re-organized and produced blood vessels, lymphatics and nerves around the circumference of the tumor. The formation of this new "nourishing pedicle" is of fine, delicate structure having a bluish tint. The dermoid contained hair, fat (sebum), and the products of the skin. In the cavity of the tumor was found one-half of the jawbone, containing one tooth of perfect form and composition as large as the adult tooth behind the canine, and another tooth of half its size, of perfect form and composition. The enamel is perfect. The jawbone is more porous than normal. Over the top of this bone lay a distinct membrane which I took to be the dura mater of the brain. These dermoids and their skeleton remains are no doubt the vain attempts of the germinal epithelium, which partially comes from the epiblast, to form complete structures. There was so much old adhesion that the right tube and ovary were not found. They may have been torn away with the dermoid and atrophied.

The left tube had salpingitis. The endosalpinx was in various stages of atrophy, as the lens would plainly reveal patches where the tubal plicæ were four times as small as normal, and other patches with abundant tubal plicæ. The tumor from the vagina proved to be a myoma about the size of an egg. It no doubt had traveled from the uterus down into the space between the bladder and vagina from the uterine rhythm during menstruation. The ovary was normal.

Case 13.—Mrs. D., age 30. One child; one miscarriage. Pain in pelvis and cystic tumor diagnosed. Laparotomy Dec. 22, 1893, at Woman's Hospital, assisted by Drs. Shibley and White. I drained one day. I removed both appendages on account of a distinct history of gonorrhea and pelvic suffering. The tubes are normal in their perisalpinx and *musculature*. There is endosalpingitis with sero-pus floating over the mucous membrane. The endosalpinx looks unhealthy. It is edematous and friable. It is swollen in one place and atrophied in another. One tube is stretched over the parovarian cyst until it is seven inches long. The ovaries are normal. The cyst proved to be parovarian. It is five by four inches in diameter. Four gynecologists, including myself, diagnosed it a tubal cyst. It can be stripped entirely out of the broad ligament. The other parovarian is normal, containing twelve vertical tubules. The hydatid of Morgagni is as large as a hazel nut, with a pedicle one inch long.

Several small cysts in the region of Kobelt's tubes are as large as a pea, and as usual a little cyst nearly always exists on the upper border of the perisalpinx just over the abdominal sphincter of the tube, vestigial remains of the Wolffian body.

Case 14.—Mrs. H., age 22; one child, age 3 years. Puberty at 13; menstruation regular, lasts three days and stops a day and then reappears. She has painful menstruation, at the same time headache and backache. The pain is located in pelvis, but radiates into limbs and body.

She has a yellow, bloody leucorrhea with considerable odor. She has considerable pain, indigestion and waterbrash. Bowels regular.

The diagnosis was a tumor in the pelvis, and we knew she had gonorrhea contracted two years previously from her husband. I operated on her at the Woman's Hospital, Jan. 31, 1892, assisted by Drs. Shibley and White. Two ovarian tumors were removed about the size of a turkey egg. Drainage and irrigation, and the abdomen closed by silkworm gut.

In this operation, large numbers of organized bands existed in the pelvis, reaching far up among the intestines. Some of the bands were a foot long. Loops of the intestines passed between the bands as loops of rope would pass between the fingers of the hand. The bands held the uterus, appendages and intestines in a solid mass. The wonder was that none of the intestinal loops were obstructed or strangulated. I generally break up all such adhesions, and scarcely ever ligate any, as hemorrhage soon ceases in a band, especially if it be broken in its middle where the circulation is quite feeble.

The specimen showed double pyosalpinx. The left had nearly lost all its pus by absorption, while the right contained a dram. The endosalpinx was in various stages of disease from catarrh to destruction.

The *musculature* of the tube showed only the alteration produced by thinning of its wall. However, the tubal wall was thick, but that was due to inflammatory exudates. The perisalpinx was thickened from ancient and recent peritonitis. Bands and exudates of various ages lay on and around the appendages. Both ovaries had become thoroughly infected by two years of gonorrhea, and cystic degeneration of the Graafian follicle had proceeded until the ovaries were the size of turkey eggs; some of the degenerated cysts contained pus. The gonorrhea had passed from the cylindrical epithelium of the tubes to the germinal epithelium of the ovary (glandular epithelium) to the cylindrical and glandular epithelium of the Graafian follicle. The reason of the disastrous infection of both ovaries was due to the method of the closure of the abdominal end of the Fallopian tube, i.e., some of the fimbriæ were left in the peritoneal cavity after the peritoneum around the mouth of the tube had contracted. These few fimbriæ had instigated a continual recurrence at menstrual and other times, when the mucous membrane on the fimbriæ was congested, and started anew the old (gonorrheal) infection. Ovarian infection is seen to perfection in this case.

The tubes carried the infection to the ovaries, and this gives more evidence that ovarian disease is nearly always secondary to tubal disease and caused by infection. This patient left the Hospital seven weeks after the operation. She was then well. She had a small fistula which frequently occurs after gonorrheal pyosalpinx, as one can not remove all the diseased tissue and the ligature became infected. Six months following the operation she had the fistula. No fecal matter ever came through it. Eight weeks after the operation, about the time the patient removed home, she began to vomit and vomited steadily for three weeks, and she has vomited about once weekly the following four months.

Aug. 1, 1893, she returned from her home in Indiana for treatment at the Woman's Hospital. I found a tender spot in the region of the gall bladder and pylorus. She has lost over thirty pounds, and is of a pale saffron color. She has periods of terrible pain and sometimes vomits. Her appetite when not in pain is good. The trouble seems to have no connection with the laparotomy. The diagnosis by Dr. Franklin H. Martin and myself is thought to be a gall stone or malignant disease of the pylorus. We are now waiting developments for a coming operation.

Stools move about every two days and are fairly natural. It appears to me that her second trouble has nothing to do with the laparotomy. (Seven weeks later this lady has gained about fifteen pounds and is looking well.)

Case 15.—Man, age 24. Ill for several weeks. Temperature varied up to 102. Pain and swelling on right side from iliac region toward lower rib. A distinct boggy tumor could be felt. It had an elongated form and distinct crepitation could be perceived by manipulating it.

The diagnosis was appendicitis. Operation evacuated several drachms of pus. The appendix was not searched for, but a drain tube and gauze were inserted. The tube was shortly after withdrawn. He made a good, easy recovery.

Case 16.—Ectopic pregnancy. Mrs. B., age 22, was married in July, 1892. In December, 1892, a practitioner produced an abortion on her of probably a three months pregnancy. From December until the last week in February, 1893, she was very ill in bed with much fever. In the last week in February Drs. Simon and Abel were called to attend her. At this time she had a severe chill and her temperature rose to 104. On February 26, I was called in consultation to see her, and I found the pelvis absolutely full of a hard, boggy mass, which extended out of the pelvis into the right side of the abdomen, in the iliac region. Aspiration per vaginam was suggested, but I did not think it best, and urged that the woman be sent immediately to the Woman's Hospital. She was in the Hospital one day and a night when I noticed the temperature was rising up to 103. On February 28 I diagnosed rupture of the pelvic cyst and infectious invasion. One hour after my leaving the hospital she had a severe chill, and the temperature rose rapidly to 106.2. Immediate preparations for an operation were made. Assisted by Drs. Shibley and White, I operated in the presence of Drs. Simons, Lucy Waite and Millman. On opening the abdomen the pelvis was found full of a hard mass, which was closely covered over by adherent omentum. Fortunately, the omentum could be stripped off the mass. The mass proved to be the fimbriated end of the tube, containing about a pint of stinking pus. The whole mass had to be literally torn out of the pelvis. After removing both appendages, the abdomen was irrigated with some eight quarts of hot boiled water and closed with silkworm gut sutures. Drainage was employed. The tube on the right side proved to have the large abscess in the fimbriated end, while in the isthmus of the tube was found the placental remains of a fetus.

The placenta was about one and one-half inches long and one inch thick. No fetus could be found.

The history of this case may be interpreted as follows: the woman first became pregnant in the tube where the fetus died. She then shortly afterward became pregnant in the uterus. Three months after, she was criminally aborted, and this abortion distributed infection anew along the right tube, which induced the tubal abscess.

The tubal disturbance at the time of death of the fetus would, no doubt, have subsided but for its exacerbation at the time of the criminal abortion and, as the os is never prepared for an abortionist, soon closed and retained the infected material, which overflowed in the direction of least resistance along the Fallopian tube. The opposite tube was healthy as far as the eye could detect.

This is a typical case to show that prompt surgical interference may save the dying. We are well aware that surgical operations on the dying are very unsatisfactory. Very often the subsequent wish arises that no operation had been done on a patient who expired almost with the completion of the operation. But this woman, who was only 22 years old, though

dying, showed a hopeful vigor that we thought might rally.

She did rally and the next day the temperature had fallen 5 degrees, and the pulse from 130 and 140 had fallen to 110. I have never known a patient to get well after a temperature of 106.2 with abdominal section.

Dr. Byford who had noted the height of temperature, said he had not known one to recover after operation with such a temperature. At the operation we took the liberty of removing the apparently normal appendage, for it may be noted that when a woman has pyosalpinx on one side that, sooner or later, the tube on the other side becomes involved. It is a very notable feature in these old cases of pelvic inflammations how the peritoneum of such women becomes tolerant to manipulation, and it also resists the invasion of infection to a powerful degree. We will note a feature in diagnosis of some troubles in the peritoneum. It may be observed that so long as the inflammatory masses remain in the pelvis, or closely connected with structures mainly supplied by the sympathetic nerve, the pain is dull and not of a cutting or short character. But as soon as the inflammation encroaches on the abdominal wall where the peripheral ends of the spinal nerves are in close proximity, then pain is much more manifest, and one can diagnose with fair certainty a localized peritonitis of the abdominal parietes. The diagnosis of this case could not be made as to whether it was ectopic or not, for we did not know that she had had an abortion produced until after the operation, as it was naturally kept a secret. This is a typical case to show that one of the great landmarks in gynecologic practice is abortion. In teaching students and practitioners, we have frequently called attention to the idea that in gynecology there are six great landmarks worth knowing, viz.:

1. Anatomy.
2. Menstruation.
3. Labor.
4. Abortion.
5. Gonorrhea.
6. Tumors.

Each one of these landmarks presents centers around which the diagnosis will turn. Around these landmarks, as principals, must cluster the details of diagnostic conclusions.

In this case the prompt application of modern surgery saved the woman from certain and speedy death, and restored her to her family as a useful member. Time and experience strikingly confirm exploratory and confirmatory sections in cases of doubtful diagnosis—and many are doubtful. This patient came to my office seven months after the operation and she reports herself as perfectly well. She has gained some twenty-five pounds in flesh and is as robust as woman could appear.

Case 17.—Age 30. One child 11 years old. One miscarriage. Puberty at 13. Menstruation painful and irregular. Married eleven years. She has backache and headache. Leucorrhea yellow, green or bad odor. Has been ill eight years. Has had temperature varying up to 104 for many months.

Some six gynecologists examined this patient, but none could give sufficient reasons for any diagnosis. Finally, in consultation with Drs. Byford and Martin, it was decided to operate. On Feb. 28, 1893, assisted by Drs. Shibley and White, I operated at the Woman's Hospital.

The tumor filled the pelvis and abdomen up to the navel, and lying in front of the tumor to the left was the uterus with highly diseased appendages. The tumor proved to be a large infected dermoid universally adherent. It developed in the broad ligament and raised it up to a level with the umbilicus. It proved to be the most difficult of operations and lasted an hour and a half. She collapsed at the last, and her pulse was not perceptible in the wrist for many hours. She was bathed in cold perspiration. The foot of the bed was elevated. Hot salt enema were given per rectum. Considerable whisky was given by mouth, hypodermically and by rectum. For three days her pulse was over 140. I could frequently count it up to 180. But her temperature for those three days was about 100 and 101 per rectum. The pulse slowly went down for ten days when it was 110 and temperature 98. During all the time the drain tube did good work. The recovery of this woman is one of the most miraculous I ever witnessed and much of it is due to trained nursing.

She came to my office six months after the operation, a large, robust, healthy looking woman. She still had a small abdominal fistula which secreted a few drops daily.

The specimen is remarkable as showing pathologic progress for some ten years. The Fallopian tube has a wall of solid connective tissue half an inch thick. The mesosalpinx and perisalpinx present the thickened and roughened appearance of repeated inflammations. Bands, adhesions, exudates and flocculent deposits tell the story. The *musculature* is fully one-half an inch thick but nearly all of this is hard white connective tissue, and muscle in it is very scarce. The endosalpinx shows only fragments of its original. It is disorganized in places and atrophied in other places. A few widely separated tubal plicæ present themselves under the lens as fairly normal but nearly all atrophied. The dermoid appears to be developed out of the ovary. It has on its surface quite a number of small cysts similar to the Graafian follicles, and its wall for a large part seems to be ovarian tissue with some very small ovarian follicles growing in it. Inside the dermoid cyst a thick membrane can be peeled out which I take to be the old original membrana granulosa. Parts of this membrane are one-quarter of an inch thick and its line of demarkation from the ovarian tissue is complete. This dermoid has a history like almost all dermoids and that is that they grow out of the ovary; they are ovarian dermoids. The broad ligament over the dermoid was enormously hypertrophied. The dermoid was filled with sebum—a kind of oily substance of a white color and of the consistency of lard. It contained hairs and many other skin products. A dermoid is a tumor containing skin and some of its appendages as hair, teeth, nails—in fact almost any portion of the body may be found in it, that is in the region of the epiblast. I have found the skull and the cranial nerves.

Case 18.—Mrs. H. Sent to me by Dr. J. F. Percy of Galesburg, Ill. She was 48; puberty at 17. Menstruation regular and painless, lasting two days. Has had ten children, ages 27 to 12. It is eleven years since last child. She has backache and slight leucorrhea. She has been compelled to be quiet for the last few years from simply pressure of the tumor. The abdominal swelling has increased for two years and rapidly for ten months. She was treated but not tapped. In examination a little fluctuation was detected but nothing definite could be elicited, and it was impossible to tell what kind of a tumor was before us. I could not map out the uterus. So with careful examination with inability to diagnose, it was decided to explore. At the Woman's Hospital Dec. 12, 1892, assisted by Drs. Shibley, White and Percy I operated. The tumor proved to be ovarian with some adhesions. But only a part of it contained fluid. The solid part was divided into many compartments with walls varying from one-half inch to three inches thick of fibrous tissue. The cavities contained semi-solid jelly which was probably mucus and other matter secreted by the membrana granulosa. The tumor weighed seventeen pounds. A drain tube was employed and the abdomen closed with silkworm gut.

She left the Hospital well on January 6, 1893. Right here is an example to show the effect of pressure on the abdominal brain by large tumors. I have noted that pressure of tumors disturbs rhythm of viscera. This lady had distressing attacks of a kind of asthma. The rhythm of the lungs was disturbed. She had hypertrophy of the heart, due to reflex action transmitted to it by way of the splanchnics from the abdominal brain to the cervical sympathetic ganglia, where the irritation was reorganized and sent to the heart on account of the pressure of the tumor on the abdominal brain causing the heart to move irregularly and rapidly. The result was overfeeding and consequent hypertrophy. Besides disturbance in the heart, this woman had constipation and indigestion due to pressure of the tumor on the abdominal brain. She had gas in the bowels. The reason of this was that irritation of the abdominal brain was emitted over the gastric plexus to the stomach, the superior mesenteric plexus to the small intestine and the inferior mesenteric plexus to the large bowel.

This irritation induced: 1, excessive secretion; 2, deficient secretion; 3, disproportionate secretion of digestive juices—result indigestion and constipation. She had gas in the bowels from fermentation. She had liver disease and was pigmented on the skin because the rhythm and secretion of the liver was disturbed. The hepatic plexus carried the irritation from the compressed abdominal brain to the liver and induced excessive, deficient or disproportionate secretion. The spleen also was disturbed in its rhythm and suffered from pigmentation. Thus through reflex action on the sympathetic nerve due to pressure of the abdominal brain, the patient suffered in every viscus. Since removal of the tumor, so far as I could find, all these "reflexes" have disappeared. In her requested annual letter to me she reports herself well and happy.

Case 19.—Miss H., sent to me by Drs. R. Zeit and Nyson from Medford, Wis. Age 15. Puberty had begun but was very irregular. She had a tumor in the middle line of abdomen and the cervix was elongated. Assisted by Drs. White and Shibley I operated at the Woman's Hospital. The tumor proved to be a very rare specimen of the ovary, the size of an apple holding locks of hair. It also had an ovarian follicle containing about a pint of clear fluid. Besides these, a large solid mass about the size of a child's head was found at the end of the ovary. This solid mass was considered to be sarcoma. Hence a dermoid, an ovarian cyst and a sarcoma were all found in the ovary of a girl of fifteen. The other ovary was somewhat enlarged and distinctly cystic so it was removed. She made a very easy recovery.

Case 20.—Mrs. G., age 48, sent me by Drs. Washburn and Jackson of Indiana. She was enormously distended in the abdomen. I operated with the kind assistance of Dr. Franklin H. Martin and Drs. Shibley and White. It proved to be a very severe operation. We removed a sixty pound ovarian tumor, part solid and part fluid. Drainage was employed and she did well until twenty-four hours after, when the pulse rose steadily higher with a viscous spring to it. The temperature went stealthily and steadily up. Her mind, from an active practical character, became slowly but perceptibly less alert to the world. She grew slowly more stupid and died fifty-three hours after the operation from, probably, acute sepsis. This was the only death in the series of thirty-two cases from the operation and they presented very severe pathology.

Case 21.—Age 56, single. This lady had a laparotomy performed on her about a year previous, for what I could not learn. The abdominal wound did not heal and I suspected malignant disease. She was narcotized and the wound thoroughly curetted. The wound led to the bottom of Douglas' sac. No ligation was found. The two following months clearly showed it to be a malignant growth in the abdominal wound subsequent to laparotomy. It was considered to be cancer. As the growth increased it obstructed the bowels. Dr. Joseph B. Bacon and myself performed lumbar colotomy on her from which she recovered. She died subsequently from the malignant affection. It is very rare to see malignancy spring up in an abdominal wound following laparotomy.

Case 22.—Mrs. R., age 39. Puberty at 11 years. Menstruation regular. She was never pregnant. She had myoma of the fundus of the uterus and bled profusely for some three years and has lost great quantities of blood for the past eight months. She was almost bloodless on entrance to the Woman's Hospital. Her tumor was a solid mass which entirely filled the whole pelvis up to its brim. I operated, assisted by Drs. Shibley and White. The mass was so dense and extensive that it was considered unwise to attempt to remove the uterus, but I carefully dug through the mass and put three ligatures around each tube, occluding the ovarian artery, and the ligature would render the tubes functionless. In November, 1892, this operation was performed. It was the first in which I ligated the ovarian artery and the uterine as it courses along the side of the uterus. Drainage was employed. She recovered. Ten months afterward she visited my office and the uterus had shrunk to less than one-third its original size; nearly every trace of exudate was gone. She menstruated or lost blood a few times. She calls herself well and strong.

Case 23.—Mrs. V., sent to me by Dr. Mary Jackson of Hammond, Ind. Age 33; seven children. She was taken suddenly ill six weeks before entering Hospital. She grew steadily worse. The abdomen enlarged. Drs. White and Shibley assisted me to operate. The pelvis was found filled with a tumor which was composed of concentric layers of blood. It appeared to come from the right Fallopian tube, as a distinct ragged aperture was found in the walls of that tube. The tumor and appendages were removed. Drainage was employed. She recovered and left the Hospital.

This was considered to be a case of ectopic pregnancy from a careful examination of the specimen. The gestation was in the right tube which showed the point of rupture. No fetus could be found, but the state of the tube indicated such.

Case 24.—Mrs. A., age 33, sent to me by Dr. Eilertson of Chicago. Ill two years; had three children, ages 13, 11 and 7 years. Has noticed enlargement for two years. One year ago the swelling suddenly subsided and then gradually increased for a year. Dr. Eilertson assisted me to operate six months ago. The tumor proved to be an ovarian cyst. The other ovary was also as large as a hen's egg. It was removed. The sudden decrease of the tumor was made plain on its removal. It had on its wall an old scar about the size of a silver dollar. This cicatrix represented the point of rupture one year before. She recovered and left the Hospital well.

Case 25.—Age 28. Ill for about one year with pelvic trouble; very ill for five months. The operation was done at Charity Hospital by Dr. Geer and myself. It proved to be a case of very severe pyosalpinx. The adhesions were extensive and dense. The enucleation demanded the tearing up of vast areas of old and recent pelvic adhesions. The bowel was wounded several times, but not sufficient to tear through the mucous membrane. Thorough irrigation and drainage were employed and the abdomen closed with silkworm gut. She did well until about the eleventh day when the temperature began to rise and for five days it wavered; on the sixteenth day jumped up to 104. Dr. Geer and I then agreed to re-open the abdomen. She was anesthetized and the finger followed the place where the drain tube had been. As the finger entered the wound about three inches, just below the pelvic brim, some two ounces of yellow pus rolled out. The wound was irrigated, drained and the woman made an excellent recovery. She has now, seven months after the operation, a small fistula in the abdominal wall, but she is ruddy and gaining flesh and is well. In this case a re-opening of the abdomen absolutely saved the patient's life.

The following seven cases of laparotomy were performed by Dr. Lucy Waite at the Charity Hospital in my service. I assisted her in each case so that a synopsis of them will be included in this series:

Case 26.—Removal of the appendages for double pyosalpinx and hematoma of left ovary resulting from gonorrhea. Patient was 25 years of age and gave a history of gonorrhea for three years past and a produced abortion. She was almost totally incapacitated for labor. Both tubes and

ovaries were bound down in massive exudates from which the Doctor literally dug them out. Every element in the tube and ovary was diseased; perisalpinx, *musculature* and endosalpinx all had widespread pathologic conditions. Considerable pus was found in the pelvis. The abdominal cavity was thoroughly irrigated and the wound closed with silkworm gut. Drainage was used. Recovery was good. Eight months after the operation she is nursing and is practically well. The reasons which justified and demanded laparotomy in this case were exactly what Dr. Waite and myself had repeatedly observed during our four months' treatment of the patient viz: periodic exacerbations of pelvic peritonitis, pain, gonorrhea, pelvic exudates, rise of temperature, constant suffering and incapacity for labor and the downward course of the patient.

Case 27.—Removal of the tubes and ovaries for a general myoma of the uterus. The patient had had a tumor the size of a cocoanut for three years with severe hemorrhage for one year. She had three children. She recovered from the operation and has had one hemorrhage since, so far as reported, in six months.

Ten months after the operation I saw her. She appears perfectly well, and says she is now healthy and hemorrhage has almost entirely stopped. Dr. Waite ligated the upper end of the uterine artery, which accounts for the almost complete arrest of bleeding.

Case 28.—Laparotomy for chronic salpingitis and ovaritis. Age 36. She was ill seven years and a neurotic wreck. The operation proved difficult, as the old organized exudates were very dense. She made a good recovery and is now very well seven months after the operation. She has improved in all nervous symptoms.

Case 29.—Removal of the appendages in a girl of 20 for hystero-epileptic convulsions of six years duration. She recovered without an untoward event. Six months after the operation the guardian of the girl writes to Dr. Waite the following: "Your patient is doing nicely and we believe she will come out all right." It seems to me that the word, epilepsy, should be excluded from this disease, as it is a reflex menstrual disturbance and is not true epilepsy. True epilepsy does not recover from removing ovaries or testicles. It is true that this girl was a total wreck, that she could not even care for herself and that an extra attendant was required for at least a week every month to supervise her during dozens of convulsions at each period. She is recovering from a *neurosis* but not epilepsy.

Case 30.—Removal of the appendages for double pyosalpinx and abscess of uterine wall, following five weeks after delivery.

The pelvic organs were imbedded in a mass of exudates and the abscess contained about a tablespoonful of yellow pus. The peritoneum was well irrigated; the mouth of the abscess was clamped to the abdominal wound for thirty-six hours. Drainage was employed and the patient made a good recovery. Five months after the operation she is well.

Case 31.—Age 52; one child 10 years old. Ill since last child was born. Laparotomy showed the uterus and appendages consolidated into a mass. Dr. Waite separated these old dense adhesions with much difficulty. The proof of the age of the adhesions was profuse hemorrhage from newly formed blood vessels. She recovered well, and left the Hospital improved in every respect. A significant fact is that her extreme neurosis almost magically disappeared.

Case 32.—Age 22. Ill two years with pelvic trouble. She was a miserable neurotic, incapacitated for labor. She had severe attacks of pelvic peritonitis. The menstruation was becoming more and more severe with increasing pain. She reports a sudden flow of pus through the vagina besides leucorrhea. The diagnosis was gonorrheal salpingitis with pyosalpinx. Dr. Waite enucleated and tied off both the appendages which were in severe pathologic conditions. Abdomen irrigated, drained and closed with silkworm gut sutures. The patient recovered well, and left the Hospital a different looking woman.

The foregoing thirty-two cases of laparotomy were performed just as they came in order. No selection was made, no picking of cases was done. The one case of death was from acute sepsis (due to what cause I know not) in a woman with a sixty pound ovarian tumor. At present (ten months after the above operations), I know of two abdominal fistulæ existing. So far as I know all other fistulæ have closed. One patient died six months after the operation from acute rheumatism; one died a year after the operation from pulmonary tuberculosis.

COCILLANA—THE BARK OF AN UNDETERMINED SPECIES OF GUAREA.

NATURAL ORDER—MELIACEÆ; HABITAT, BOLIVIA.

Read in the Section on Materia Medica and Pharmacy, at the Forty-fourth Annual Meeting of the American Medical Association.

BY F. G. RYAN, M.D.

PROFESSOR OF THE PHILADELPHIA COLLEGE OF PHARMACY.

This remedy, which was first brought to the attention of the medical profession by Dr. H. H. Rusby of the New York College of Pharmacy, seems to be gaining much favor. The results of many clinical investigations indicate that this drug is destined to become one of great usefulness in the treatment of diseases of the respiratory organs.

The following botanical description is taken from the "Pharmacology of Newer Materia Medica:"

"This species was first described by Dr. N. L. Britton of Columbia College, under the name of *Sycocarpus Rusbyi*, on the supposition that it was a new genus belonging to the natural order *Anacardiaceæ*. On the subsequent acquisition of complete specimens, Dr. Britton at once recognized the true affinities of the plant as being with the genus *Guarea*, natural order *Meliaceæ*, and referred it with some doubt to the species *Guarea trichlioides*. (Linn.) While it is certainly a *Guarea*, there is much difference of opinion as to the species. Dr. Rusby is quite positive that its characters render it distinct from all known species of that genus, in which, I may remark, nearly all the species are separated by very minute differences of structure. The tree is described as reaching an extreme height of some thirty or forty feet, and a trunk diameter of nearly three feet. It is low, and broadly spreading in habit, reminding one considerably of a large apple tree. The bark is thick and ash-colored, becoming rough only with considerable age. The larger branches are horizontal, the ultimate ones somewhat erect and bearing the leaves erect, clustered at their ends. The leaves are pinnate, bearing some resemblance to those of the common sumach, but much larger, being a foot and a half or more in length by two-thirds of a foot broad, and bearing from five to ten pairs of oblong obtuse leaflets, the larger of which are six or eight inches in length. In the axils of these leaves appear the loose racemes of flowers, some eight or ten inches in length. The flowers are small, scarcely larger than the head of a small carpet tack, with the parts in fours, of a dull greenish color, very inconspicuous, and are succeeded by a somewhat woody fig-shaped fruit, as large as a walnut. It contains four cells, one or more of which are commonly obliterated as it matures, and one or two erect seeds."

Joseph Schrenk in the *Druggists' Bulletin*, August, 1888, gave the following description of the appearance and structure of the bark:

"The samples of this bark which I had occasion to examine, were evidently taken from an old tree. They were curved pieces, about fifteen mm. thick; large white patches, caused by the growth of a fungus, are seen on the tawny-yellow outer surface, which is very rough and uneven, with deep longitudinal furrows and crevices, and occasional horizontal fissures. The inner surface is grayish yellow, coarsely striate, and often roughly fibrous, with numerous detached broad bands of bast-bundles.

"The fracture, which is coarsely granular in the outer and splintered in the inner bark, shows that the 'cork' is very strongly developed, for in many places the periderm occupies about two-thirds of the entire thickness of the bark; it is of a light reddish-brown color, with numerous yellowish-white, scattered dots plainly visible to the naked eye. The inner portion of the bark is of a firmer texture and tangentially finely striate. The odor is slight, but peculiar, and the taste unpleasant (not bitter); slightly nauseous.

"On cross and longitudinal sections the periderm is found to consist of one or several layers of primary, and frequently even of secondary bark separated from the deeper living tissues by broad bands of cork. Large groups of sclerenchyma cells with very much thickened porous walls are seen in the periderm and the other parts; their number diminishes toward the interior, and in the inner half of the bast portion they are met with only very sparingly.

"The bast cells are arranged in strictly tangentially elongated groups (as seen on the cross section), but there are no radial rows, therefore the medullary rays are not so readily distinguished with the unaided eye as in some other barks. They invariably make considerable curves where they enter the zones of cribrose and parenchyma tissue, which alternate with those of the bast-fibers; and as they contain a red colored substance they can easily be traced under a low power as undulating red lines. On tangential sections they appear very distinctly as narrow eclipses made up from one to three horizontal, and up to twenty vertical rows of cells. Where these rays pass through parenchyma tissue they are frequently bounded by vertically elongated, rather wide cells, distinguished by the fibrous thickening of their cellulose walls. They form a prosenchyma-like tissue, or in each vertical row of (from five to ten) cells the two terminal ones are pointed.

"The bast-cells are slender and straight, at an average of seventy-five hundredths mm. in length. Each fiber bundle is accompanied by rows of cells with very much thickened lignified walls, each containing a large calcium oxalate crystal (of the monoclinic system) entirely filling the interior of the cell, so that when the crystal is removed by the application of hydrochloric acid, an exact mold of it is left. So closely are these rows of 'crystal sacs' applied to the bast-fibers, that the latter can be brought to view on longitudinal sections only with difficulty. Calcium oxalate crystals of the same form are also seen in other cells, especially in the proximity of the stone cells. Small, rounded, simple starch grains are rather abundant in the parenchyma, and in the cells of the medullary rays can be noticed the red colored masses mentioned above, which are insoluble in alcohol."

Clinical examination of the therapeutic properties of cocillana has engaged the attention of a number of prominent physicians, complete reports of which will be found in various journals.[1] The latest of these by Dr. John V. Shoemaker,[2] speaks of his results as follows:

"In small doses, it has a good influence upon the appetite and digestion. In larger quantities, it produces an emetic and cathartic effect. The alvine discharges, under its use contain mucus and bile. It stimulates the sudoriparous glands and, when given in considerable quantities, causes copious perspiration, accompanied by prostration of muscular strength. Excessive amounts also give rise to giddiness. It is eliminated principally by the broncho-pulmonary mucous membrane, upon which it exerts a stimulant and alterative effect.

"Cocillana may be administered in the form of a tincture or fluid extract. The dose of the tincture is from 30 minims to 2 fluidrachms; that of the fluid extract from 10 to 20 minims. In my clinical experiments I have made use of the fluid extract, which resembles sherry wine in color, has an aromatic odor, and a bitter taste. It is, however, not unpalatable when mixed with syrup.

"The chief therapeutic value of cocillana is in the treatment of the diseases of the respiratory tract. In epitomizing my experience with this drug, I deem that I can not do better than to relate briefly the histories of a few cases in which it was employed with notable advantage. Bronchitis is the malady to which it is the most applicable, and it is particularly beneficial in the subacute or chronic stage. Cocillana stimulates the capillary circulation of the bronchial mucous membrane, and thus relieves inflammatory congestion. The secretions of the respiratory tract become more notable in character; thick and tenacious sputum is liquified, excessive expectoration is restrained, and cough is allayed.

"The amelioration of the cough allows the sufferer to obtain more sleep. The stomach likewise gains in tone under the use of medicinal doses of this drug. I have employed it in the bronchitis of children as well as of adults. I have, in some cases of chronic bronchitis, found it fully as efficacious as iodid of potassium, and it is usually better borne, and can be used for a longer period continuously than the iodid. Cocillana should, therefore, be esteemed a very welcome addition to our therapeutic resources. In the doses which I have named, it is totally free from nauseating or depressing effect. In beginning my clinical experiments, I gave the drug alone. When I became acquainted with its properties, I combined it with some syrup for the purpose of increasing its palatability, assisting its action, or fulfilling other indications of the case."

[1] H. H. Rusby, M.D., in the Therapeutic Gazette, August, 1888. David D. Stewart M.D., in the Medical News, of August 24, 1889. Reynold W. Wilcox, M.A., M.D., in the New York Medical Journal, Dec. 28, 1889.

[2] John V. Shoemaker, A.M., M.D., in the Medical Bulletin, February, 1893.

THE SINGLE HYPOPHOSPHITES IN DEFECTIVE NUTRITION OF BONE AND NERVE TISSUES.

BY LEWIS G. PEDIGO, A.M., M.D.
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Of all the varied uses of the hypophosphites, none are more interesting to me than their employment to meet certain faults of nutrition in the osseous and nervous systems. I group these two departments of the human organism roughly together here, because my attention was directed to them in this connection, by certain rational considerations. In the chemic constitution, the growth and the maintenance of both, phosphorus plays a very important part. So it was inferred, that in certain pathologic conditions of either, especially when characterized by defective nutrition, the use of phosphorus in some convenient and easily assimilable form, is the primary and essential indication of treatment. The various clinical trials of this opinion in practice for several years, have amply justified and sustained the inference. My readers are probably familiar with the use of these remedies in cases of delayed teething in children. Aside from this familiar use, my cases have embraced instances of defective bone development in children, and a certain low type of sub-acute and chronic inflammation, occurring in the bony and periosteal tissues of scrofulous or badly nourished patients, as the result of a blow or injury. It must be borne in mind, in these cases, that the predisposing cause is the state of defective or perverted nutrition. The same traumatism which in such a constitution would cause a troublesome, tedious and prolonged inflammation, would produce very slight local effect in a vigorous healthy subject The course of such a case under the usual treatment is very unsatisfactory. The periostitis shows little tendency to recover, and the bony tissues, so dependent on the healthy action of the periosteum, manifest a tendency to disintegrate. As a result we have a case of hip-joint disease, or Pott's disease, or some other orthopedic affection, with the prospect of a *long special* treatment, and an endless array of plaster jackets, splints, etc. Recognizing and appreciating all the good to humanity and to science that has been accomplished by the modern orthopedic surgeon, (and it is much), it is plainly the duty and province of the general practitioner, to arrest the progress of these cases in the earlier stage if possible. In my own experience, the hypophosphites offer the best means of relief in this incipient period and, in some cases, almost the only hope of resolution of the inflammatory process. If I might be pardoned the presumption of making a suggestion to a specialist in his own field, I would say to the orthopedic surgeon, that he could not do a better thing, even after this ugly inflammation has reached that stage in which

the tissues break down and deformity results, than put his patient on hypophosphite of lime, as adjuvant to his special surgical measures. Judging by its effects in other fields, and in the first stages of the class of cases under consideration, it would impart more vitality to a failing system, furnish some much needed elements to the organism, and promote healthier action and a *tendency to repair* in the affected tissues. For obvious reasons, the hypophosphite of *lime* is the particular salt to be used in all injuries and inflammations of bone and periosteum. With no intention of entering into elaborate review, I recall one case sufficiently typical to exemplify my meaning. A girl 13 years of age was thrown from a horse, falling on the side, so that the left thigh struck the apex of an angular rock. Some lameness resulted —obviously associated with an injury to the femur, near the great trochanter. A slight depression in the bone could be felt at this point. Inflammation, swelling, redness followed, with considerable deep-seated tenderness and pain on walking. This condition was temporarily improved by counter-irritation—use of iodids, and various other measures. But there was a constant tendency to relapse, especially in damp depressing weather, with east winds.

The case was becoming chronic, the general health failing, the affected parts threatening a chronic abscess, with more or less disastrous effects upon the integrity of the bone and the future usefulness of the limb. The parents were justly and reasonably alarmed, because one bad case of hip-joint disease had occurred in the family as a result of a similar injury. A scrofulous taint was suspected.

The patient was directed to take a teaspoonful of Gardner's syrup of hypophosphite of lime, three times a day, with no other treatment except rest, suitable diet and hygienic precautions. Improvement began with surprising promptness, considering the peculiar nature of the tissues affected and the usually slow processes which characterize them. The most striking feature was the *control of the pain* which the remedy seemed to exercise. Of course this was not a *direct* anodyne influence, but was effected through a modification of the inflammatory processes. The case went on pretty steadily to a good recovery. It is significant that the patient observed the pronounced change in the case as coincident with the change of treatment, and expressed herself as feeling safe so long as she was taking this remedy.

As to the other class of cases alluded to above, I shall present the essential history of only one, which is sufficiently typical of a large number, to answer the purpose of illustration:

A child, male, age 6 months, was suffering with diarrhea and indigestion, associated with difficult and delayed dentition. The gums were red and swollen; teeth were developing slowly which should have appeared about the seventh month. The anterior fontanelle was very large, relatively larger even than it should have been at birth, showing retarded and defective development of the parietal and frontal bones, and indicating a general faulty nutrition, especially of osseous tissue, both in fetal and infantile periods of life. The general appearance of the child was extremely bad. It was ill-nourished, emaciated, pale, feeble and irritable, with loose, easily wrinkled skin, and a bad complexion. A treatment was adopted for the temporary relief of the dental irritation and diarrhea, and a prolonged course of syrup of hypophosphite of lime was directed, with no other medicinal treatment. I did not see the patient again for six months; (the family lived some distance away). At the end of that time, the mother brought the child to me, not for any professional service (which was obviously not needed) but for *exhibition*. The improvement was beyond all anticipation. The fontanelle was almost entirely closed; the teething process had gone on without irritation of any consequence and had progressed much more rapidly, and the general condition was so much better, that no one could have identified the child. It was plump, well nourished, of good, clear, rosy complexion, and evidently felt comfortable and in a good humor with the world—a symptom of great significance in these cases.

I have spoken of this case as a *typical* one—meaning that it represents a *class* of cases which in my experience have been conspicuously benefited by the use of the hypophosphite of lime. I must say, however, that the *brilliant results* of treatment in this instance, must not be expected in every case. It is *somewhat* above the average in this respect, and therefore not strictly typical in this sense. But its history exemplifies and illustrates principles of treatment that will hold good in all of the class of cases to which it belongs.

Under the second division of my subject, viz: the use of the hypophosphites as nerve nutrients, it is my purpose to confine myself to one case, a specific gummatous tumor of the brain:

The patient a bright mulatto, age 26, stout and generally healthy in appearance, gave a distinct history of syphilis. At the time he came under my observation he was troubled with aphasia, with partial paralysis on the right side, walked imperfectly, scraping the floor lightly with the sole of the right shoe. He could be sent to take a note (not a verbal message), could go to any portion of the town, and find his way without difficulty, but could not remember the names of the streets. He was sent after the cows on the commons, and would get the right ones, but could not tell their names, and if he attempted to throw a stone at one of them, it dropped within two or three paces of his feet. The left hand and arm were much stronger than the right; he was obstinately constipated.

The case was vigorously treated with large doses of iodid of potassium, and small doses of mercury biniodid, with some attention to the digestion and state of the bowels. The iodid was given in increasing quantities until a dose of 60 grains three times a day was reached. This was continued for periods of about a week or ten days, alternating with short periods of suspension of the remedy. The effect was good and improvement began and continued for months. The paresis was better, the mind was clearer and more vigorous, the strength and power of endurance increased and the aphasic symptoms yielded perceptibly. After some months of this treatment, the case seemed to come to a standstill; the improvement reached a limit. Now it was considered safe to begin a *restorative* treatment—on the theory that the iodid had done its work of liquefaction and absorption of the tumor faithfully and well. The patient was placed on a small dose of tincture of nux vomica, (10 drops) thrice daily before meals and the effect carefully watched. It produced some irritation of the brain—cerebral hyperemia and evident aggravation of all the symptoms. It was withdrawn promptly and the former treatment resumed for another month, with a few doses of bromid of sodium at first, to control the untoward effect of the nux vomica. After a month the nux vomica was again cautiously tried, and this time with good effect. The symptoms—mental and physical—all improved somewhat, and no irritation supervened. After a few days another measure was added to the treatment, viz: the use of a teaspoonful of syrup of hypophosphite of lime, thrice daily, *after* eating. The effect of this step was perceptible in the decided improvement of all the symptoms. I continued the use of the hypophosphites in this case for several months, watched the effects carefully and with intense interest. I had dispensed from my office only two ounces of the syrup of the lime salt in the first place, so it was soon exhausted. When the patient returned I found I had no more of that preparation, but had a remnant of syrup of hypophosphite of manganese. I substituted this and found, to my surprise, that it seemed to act much more favorably than even the hypophosphite of lime. When this remnant was exhausted, I returned to the use of the lime, however, and the patient *noticed the difference* in his condition. He insisted that I give him the "same medicine he got the other time," which I did, and with the same result. His neighbors and friends remarked upon the mental improvement. The family reported that he could begin

to work better, remember messages more accurately, and the patient said he could "learn and recite his Sunday-school lesson better." I had ample opportunity to watch this case closely, and to differentiate the effects of the various remedies used at different times, and my conclusion is that the single hypophosphites were decidedly efficacious in the latter stages of this case.

The theory which led me to their use may be stated as follows:

In cases of gummata of long standing, the contiguous parts of the brain are subjected to constant pressure, interfering seriously, not only with their functional activity, but with the nutrition of the cells and fibers which enter into their structure. After the gummata have been partially or fully absorbed under the influence of the heroic doses of iodid of potassium—so that the brain tissue has the opportunity to expand again to something like its normal size and shape—these compressed, starved and dwarfed fibers and cells need some restorative remedy, some special nerve *nutrient*, to assist in this development. Nothing so naturally suggests itself to the medical mind for this purpose, as phosphorus in some available form.

As the single hypophosphites are my favorite preparation of phosphorus for almost all its uses, I prescribed them in this case, with the results recorded above. I have reason to believe the effects can be duplicated in other similiar cases. In an old case, as this was, even when it first came to me, the physician must not expect too much of any remedy. Parts of the brain structure have been absorbed under the long-continued pressure. Other parts, even though remaining, have been so damaged, that their integrity can not, probably, be fully restored, or their functions rendered strictly normal.

In conclusion, let me warn my reader who feels sufficient interest to test the matter, not to begin the restorative treatment too early in the development of the case.

THE PHYSICIAN AND THE PHARMACIST.

A Volunteer Paper read in the Section on Materia Medica and Pharmacy at the Forty-fourth Annual Meeting of the American Medical Association.

BY L. CH. BOISLINIERE, M.D.

ST. LOUIS, MO.

A few words of protest and advice are herein offered from an old practitioner. I believe in the profession of pharmacy and I highly respect the pharmacists. They are the hand-maids of the physicians and our best friends, often our useful advisers. The two professions should work in harmony, one not encroaching upon the specialty of the other. Therefore the pharmacist should not tolerate any counter-prescribing, and the physician should not dispense his own medicines. I therefore most strongly protest against the custom, lately too frequently resorted to by physicians, of distributing among their patients any of the potent triturates, or dosimetric granules, so elegantly put upon the market by otherwise reliable wholesale dealers. This practice is enticing, but it is often dangerous.

This protest applies chiefly to the city physicians; an exception should be made in favor of the country practitioners. For them it may be sometimes absolutely necessary and is often very convenient; they are so placed that they can not do otherwise; but it is a practice fraught with danger.

This practice, in cities especially, may be followed by suits for malpractice in case of any accident. The prescriptions on file with the pharmacist are a strong protection to the physician, as they can be referred to, and, if necessary, brought into court in case of a suit for damages. While serving as Coroner of St. Louis County, several cases of this kind came under my official notice for investigation. One was the case of a woman, for whom a most reputable physician had prescribed a mild cough mixture. The husband, at the inquest, stated that his wife walked in the garden, after taking a teaspoonful of the medicine, and dropped dead, as if shot. Happily, the bottle of medicine was in the house, properly numbered, and came from a very good pharmacist. The prescription from the file was brought to the house of the deceased and shown to the jury to be a harmless mixture. This, however, did not entirely satisfy the husband. In order to convince him, I opened the deceased's chest and showed him the heart; the pericardium was enormously distended; puncturing it, I received in a cup nearly a pint of serum. The woman had died of acute pericarditis. This amount of serum, pressing on the heart, had caused its sudden stoppage and the patient's death. The husband was satisfied and the physician discharged.

Upon another occasion, an old man had had a weak solution of morphia prescribed for nervousness. The next day I called at the house and found the front parlor full of people and crape at the door. On my inquiring about the patient his sister rushed in, in a fury, and exclaimed to me: "You dare inquire about my brother! You killed him! He walked to the mantelpiece, took a teaspoonful of your infernal mixture and dropped dead!" He died of paralysis of the heart, as was afterwards ascertained. The pharmacist, an excellent one, was requested to come immediately with the prescription, which he had on file, and which called for one grain of sulphate of morphia, of which the patient had taken one teaspoonful, equivalent to one-eighth of a grain, which certainly is not a poisonous dose. The family was finally satisfied that the fatal result was not connected with the medicine.

From these cases is seen the great advantage of filing, dating and numbering prescriptions.

In another instance, there was prescribed for a young woman a one-eighth grain dose of morphia; but, through the accidental misplacement of the bottles, she took one teaspoonful of strong sulphuric acid, and would have died had it not been for copious draughts of water, mixed with plaster scraped from the walls of the room. For several months, she could swallow nothing but milk, as she had an extensive inflammatory stricture of the esophagus.

Here the pharmacist was called in to show that the prescribed mixture was a weak solution of morphia and not sulphuric acid, which it was subsequently learned had been left carelessly in the room to acidulate a battery. I could relate more cases, but these are sufficient to illustrate my position, that often the pharmacist is the best protector of the physician.

Another point to be considered is this: Quite a reprehensible custom is that of pharmacists, on demand of patients or their friends, repeating prescriptions without the order of the physician. This is done generally because it would be impolite to refuse; moreover, they have nothing to gain by it. This indefinite refilling of prescriptions should not be

done, because it makes the patient his own prescriber, often to his own detriment, as no two patients or diseases are alike. It is a dangerous practice, and should be abolished by a mutual agreement with the pharmacists. This practice is often resorted to by designing persons for mercenary purposes. I will briefly recite a case to illustrate:

I once prescribed a mild but efficient cough mixture. What was my amazement when I ascertained that the formula had been printed and sold to many acquaintances for twenty-five cents a copy. Let, then, physicians and pharmacists live in perfect harmony, following their useful and noble professions, each respecting and protecting the other.

RETRO-PHARYNGEAL ABSCESS—WITH REPORT OF CASE.

BY REVERE H. HERROLD, M.D.
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Miss T; age, 22; native of Sweden; occupation, clerk; left the land of her nativity in August, 1893, in good health as far as can be discovered. August 29 I saw her for the first time, and received a history of previous good health, except that a week before, she was seized with choking and pharyngeal spasms. These symptoms passed away and none appeared again until the day of my visit, when I found the spasms and choking present, with cyanosis, greatly increased during the pharyngeal spasms. Examination of the throat with the finger revealed no pathologic condition, leaving thus a doubt as to what caused the spasms and choking. Anti-spasmodics were administered, which only partially relieved. The patient having stated that no passage from the bowels had occurred for several days, a cathartic was prescribed and the patient left for a time. In less than an hour I was again called, and found that the cathartic, which was a powder, was being expelled from the mouth by what at first appeared to be mucus but later was found to be pus. The attempt to swallow the powder caused the rupture of abscess, which was located very low. The patient became unconscious and remained so to the time of her death. Continuous symptoms were manifest here for about thirty-five hours. The symptoms a week previous were of such short duration that no physician was called.

There is a feature of this case which deserves mentioning. The deceased left her native land to meet and marry her lover. Having no means of her own, the lover paid for her physician and saw that she received a respectable burying.

In making a brief review of this subject it may be said that a retro-pharyngeal abscess is the result of a suppurating cellulitis in the areolar tissue between the pharynx and the vertebræ, and frequently not in the median line. It is primary or secondary according to its previous pathologic state. The cause, if primary, is atmospheric or due to some irritating substance lodged in the pharynx. The secondary form may occur after measles and scarlet fever. The inflammation of the pharynx common in those diseases extends to the subjacent connective tissue and becomes suppurative. Caries of the cervical vertebræ is, however, the most frequent cause of the secondary form. When it originates in this manner it is similar to a lumbar abscess except that its proximity to the air passages renders the symptoms more urgent and dangerous. Erysipelas, syphilis, inflammation of the inferior maxilla, cerebritis and scrofula have been followed by a retro-pharyngeal abscess. Small lymphatic glands which lie in the connective tissue external to the pharynx, are undoubtedly the original seat of suppuration in a majority of cases. Often the abscess may be seen or fluctuation felt by the finger, but when, as in the case reported, the abscess is low, it can not be positively diagnosed. It may be said, however, that when it is due to caries it is preceded by deep-seated pain, greatly increased by movements of the head. The symptoms usually described are those of restlessness, mouth dry and hot, deglutition more or less difficult, the tongue furred. After suppuration there may be alternations of rigors and fever. The tissues chiefly involved are the submucous, and the degree of redness of the mucous surface is less than where the mucous membrane is chiefly involved. Chilliness and convulsions occasionally occur, but embarrassment of respiration is the chief cause of danger, frequently beginning early, and becoming more and more prominent as the abscess increases. Dysphagia is present, and is sometimes so great that solid foods are refused, and drinks taken with difficulty.

The disease may be mistaken for protracted laryngitis owing to the resemblance in the respiratory symptoms; the voice is feeble or indistinct from the pressure of the tumor, and the respiration sometimes whistling and impeded. Dyspnea increases as the abscess enlarges, and imperfect oxygenation of the blood follows unless the abscess is opened or it ruptures spontaneously. Paroxysms of dyspnea may occur so as to threaten suffocation. The pulse is frequent and rapid, the head is thrown back, the tongue protruded, and the patient is forced to remain in a semi-erect posture. The limbs become cool, livid. Finally death results from dyspnea. Even if the abscess rupture, life may not be saved in all cases, as the case herewith submitted illustrates. If the trachea and bronchial tubes are deluged by the purulent discharge, suffocation follows. Another example of this is found in the records of the Bellevue Hospital. In May, 1871, a boy, age two and a half years, having symptoms of an abscess for three months, was brought before the Hospital class. The patient's head was carried sidewise, and rotation of the head caused pain. A laryngeal râle accompanied respiration. In this case the upper part of the tumor could be detected by the finger, but its location was so low that it could not be opened with a bistoury. Dyspnea came on and death being imminent, the class physician, Dr. Swezey, broke the abscess with his finger and pus was ejected, but death occurred almost immediately. Most of the cases reported are of infants and children. The case submitted by me occurred in a lady 22 years old. It can not be precisely ascertained when an abscess begins to form, nor can its duration be foretold. The duration will depend upon the rapidity of growth, and the direction in which it points; a lateral or downward extension not being so immediately dangerous to life as an anterior.

We should not lose sight of the fact that the thickness and the density of the wall of the abscess varies greatly. Thus Dr. W. C. Worthington reported a case in 1842 in the *Provincial Medical and Surgical Journal*, in which the case occurred from exposure to cold. The patient was a child and was treated for croup. It died from suffocation. In this case the anterior wall of the abscess was very thin. On the other hand, Dr. E. O. Hocken relates a case in the same journal and the same year, where the abscess seems to have been present from birth, the infant dying at the age of 9 weeks. It had always thrown back its head as if suffocating when taking the breast

The walls of the abscess were thick, firm, almost cartilaginous.

The treatment of retro-pharyngeal abscess needs no comment. It must be opened early. Where it has ruptured spontaneously speedy recovery has followed by the use of codliver oil and the syrup of the iodid of iron. Spontaneous ruptures, however, do not always mean a speedy recovery.

253 E. Ohio Street.

OBLITERATION OF CONGENITAL PIGMENTATIONS.

Read in the Section on Dermatology and Syphilography at the Forty-fourth Annual Meeting of the American Medical Association.

BY B. MERRILL RICKETTS, PH.B., M.D.
CINCINNATI, OHIO.

Abnormal pigmentations of the human skin have always existed and are always more or less objectionable, especially where they occur upon the exposed parts of the body. I say always objectionable, meaning the congenital ones, and I might say the artificial ones sooner or later are objectionable.

In order that we may be able to more thoroughly understand the character of the various pigmentations, I have made the following classification, which I have found to be very convenient, and which I believe answers ordinary purposes. It is as follows:

1. Elevated pigmented surfaces.
2. Non-elevated pigmented surfaces.
3. Red, elevated or non-elevated, pigmented surfaces.
4. Brown, elevated or non-elevated, pigmented surfaces.

In the elevated pigmentations, I have found obliteration much easier than in any of the other three I have mentioned. Those that are non-elevated and have a brown color, are the hardest to obliterate, and require a greater length of time for treatment, and the results are not so good.

On the other hand, the red ones, elevated or non-elevated, are removed with greater ease, especially if elevated. I believe that this classification answers every purpose in the treatment of congenital pigmentations. As to the acquired ones, I do not care at present to have anything to say. When we consider how little progress has been made in the successful treatment of these lesions, and the great number of persons possessing them together with the demands which association brings, we can not help but look with regret upon the present status of treatment. It is with horror that I look upon these deformities, and with great chagrin that we stand handicapped in giving relief to those who so often approach us with so many regrets. I believe it is the duty of every person to rid himself, so far as possible, of every characteristic that may be objectionable to his associates—warts, moles, cicatrices, tumors of various kinds, superfluous hairs, deformed nails, fingers, ears, lips, eye-lids and nose, are all of equal importance. The dentist prides himself in giving to his patient a set of teeth that is not only useful, but possessed of great beauty; the barber becomes noted in applying his artistic skill to the hair of both the head and face. With all these standing out in bold relief, we must admit our shortcomings. Possibly the remedy lies in the extirpation of these pigmentations, followed by skin-grafting, as suggested by Thiersch. It may be that it is something less severe, but who is to present it? I firmly believe that where the pigmentations are large and can not be excised, and the edges brought together without deformity, that the Thiersch method offers the best results. Surely the grafts, together with the attending cicatrices, would be less objectionable than the discolored or elevated surfaces, and I am thoroughly convinced that I, myself, would resort to them, taking my chances, in preference to carrying one of these birth-marks.

If the lesion is supplied with a great amount of blood, there is but little difficulty in destroying the vessels with electrolysis. This is the treatment which I offer as the best means, so far discovered, in destroying the elevated or non-elevated red pigmentations, also where the elevations are brown, unless it be by the Thiersch method. But, where the surface is brown, so far I have been unable to lessen the deformity to any great degree by electrolysis. Thinking, perhaps, that I might be able to obliterate this discoloration, I selected a few upon myself and various patients for experiment. I decided to use finely powdered feldspar and flint. These are ground for fifty hours and used extensively in the manufacture of fine pottery. I selected needles as fine as could be had, and with great care tattooed several lesions as carefully as I could, some with flint and some with feldspar. The result was an inflammatory process, which destroyed not only the color, but also the epithelium and part of the papillary layers. In each case there was a fine white cicatrix remaining, which was smooth and a little lighter than the surrounding skin. I am not sure that either the feldspar or flint was the least beneficial. I make the statement to show what *could not* be done with them. Where the lesions are small I have had better results with electrolysis and excision than by any other procedure. If excision is to be resorted to, it should be with the greatest care, the sharpest knife, and aseptically. I have not found it necessary to use but the lightest sutures, silk worm gut being the best; often these are not used unless there is great tension to be overcome, usually having found rubber adhesive straps sufficient to keep the walls of the wound together until primary union could take place.

I have tattooed with all remedies so far suggested, and I am free to confess that not one of them is satisfactory in my hands. Possibly the fault lies within myself, more perhaps in the application than in the prolonged treatment, for I have been faithful in their application.

There is one procedure that I value above all others in cases where any congenital pigmentation, whether elevated or non-elevated, red or brown, involves any great amount of surface. It is in the use of Thiersch's skin grafts. The great trouble is in overcoming the fear of both the operator and the patient that the grafts are not always certain. This is a very great desideratum, but one which must not be overlooked. If the operator is fearless, clean and skilful, there is no reasonable doubt but that the skin will become adherent and that the surface will become smooth and lose the objectionable deformity. Even though the grafts should not become adherent, the resulting cicatrix is far less objectionable than the condition for which the operation was made. My own experience has taught me that these lesions

when found upon the face or hands, can be removed and without any risk, unless it is in taking the anesthetic, especially where chloroform or ether is used. I do not believe that grafting is so successful when done upon surfaces which have been anesthetized by subcutaneous injections of cocain. It seems to me that the capillary supply upon which we must necessarily depend for nourishment to the graft is greatly lessened by the influence of cocain. It lessens the congestions of mucous surfaces, and why not the normal capillary blood supply to the papillæ? I would not, therefore, hesitate to use either chloroform or ether where the lesion is extensive, in preference to the subcutaneous injection of cocain. Then, too, the amount of cocain requisite to produce local anesthesia, would in all probability cause constitutional disturbance of an unpleasant character. I have now used cocain subcutaneously almost one thousand times, and with but two or three exceptions have never had any unpleasant results from it. So that, so far as the use of this remedy is concerned, I, myself, would not hesitate to use it even in the larger lesions. Then, so far as the administration of chloroform and ether are concerned, fortunately it is not necessary to prolong their administration, as the operation requires but a very short time if detail is looked after in the beginning. In removing the objectionable tissue, hemorrhage is sometimes to be encountered, especially in the red ones where there is a great amount of blood supply. This, however, can be overcome with the application of hot water containing chlorid of sodium in the proportion of one-half of 1 per cent. If this should not control the hemorrhage, and if found impossible to apply the grafts with certainty, the surface may be allowed to granulate and grafted upon later on.

The knife to be used should be the sharpest, and the tissue removed with one bold stroke. The skin to be substituted should be from the thigh or arm, which has previously been cleansed and made ready for the operation. The shavings should be as thin as it is possible to make them, there being but little capillary hemorrhage. If the surface is two, three or four inches square, the grafts should be as few in number as it is possible to cut them. If three or more inches square is required, it is best to remove the cuticle from the abdomen where the surface is flat, and the knife allowed to make one broad cut. If it is found necessary to wait several days before applying the graft, the granulated surface may be mowed down with a curette, the hemorrhage checked and the grafts then applied; however, I have made it a rule to apply my grafts at the time of the primary operation, thus giving me two opportunities to secure their growth. Any surface upon which grafts should fail to become attached at the primary operation, can be covered at the second sitting.

So far as the dressings are concerned, they should be simple but firm. I have found nothing better than as fine quality of cheese or tobacco cloth as I could procure, which enables the secretion to become absorbed, leaving the grafts as free as possible from other influences.

So far as the use of these grafts goes, I have nothing in the way of improvement to offer on the Thiersch method. He has described in detail the conditions, operations and care of them, so I feel that it would be useless to speak further upon this, the most ingenious and useful plan of skin grafting.

In conclusion, I will say that I believe this is the only available means we have of obliterating these birth-marks, unless it be electrolysis, on which I do not place so much value.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

SECTION ON ORTHOPEDIC SURGERY.

(*Continued from page 67*).

DR. WHARTON SINKLER read a paper entitled

THE TREATMENT OF SPASMODIC TORTICOLLIS BY CONIUM.

The treatment of spasmodic torticollis is most unsatisfactory. The pathology of the affection is so obscure, that rational treatment is all the more difficult of application. Dana, speaking of wry neck says: "In rare cases is it cured, in many others it can be ameliorated, but it generally reaches a certain stage, and then remains chronic." Drugs of all kinds have been recommended in the treatment of this affection, and splints and mechanical appliances are of no benefit, but usually aggravate the affection. From the fact that frequently the muscles principally involved are the sterno-mastoid and the trapezius, the affection has been supposed to be due to disease of the spinal accessory nerve, and treatment has been directed to this nerve.

Counter irritation, galvanism and actual cautery, applied as near as possible to the origin of the nerve have been used, but with far from satisfactory results. Surgical measures, such as stretching this nerve, and the excision of a large portion of it have been resorted to but in only a small proportion of cases has relief followed the operation. It is, therefore, evident that the disease, except in rare cases, involves the deeper muscles of the neck, as well as the sterno-mastoid and trapezius.

LEZYNSKI recommends the use of belladonna, given in increasing doses almost to the point of toxic influence, and keeps this up for four or five weeks. He has had marked success from this method, and Grey says that since he has followed Lezynski's plan, he has cured eight cases of spasmodic torticollis by the use of belladonna. I have used this remedy myself, but without success. The best results which I have seen from drugs in this disease, have been from the use of conium. This drug was recommended by Harley many years ago in the treatment of spasmodic affections, but it never has been used extensively. G. M. Hammond reports the successful treatment of a case of painless facial spasm by the use of this drug, and Rockwell of New York, recommended it in the treatment of chorea. The text-books, however, do not speak of it favorably. Hare, in his work on "Therapeutics," remarks: "That conium holds an unimportant place in the drug list of to-day." I have found in my own experience, however, that it is decidedly useful in many forms of muscular spasm, when not due to central causes.

From experiment, it has been found that conium causes paralysis of the motor nerves when given in physiologic doses. There are drooping of the eyelids, staggering and inability to walk, showing its influence upon the muscular system. It is, therefore, reasonable to expect that in the treatment of muscular spasms, when peripheral in origin, that the remedy would prove useful.

HARLEY recommended the juice of fresh leaves, but this is difficult to obtain, and the fluid extract is a reliable preparation. The dose in which it is recommended in the text-books is entirely too small to be efficacious. I usually begin with 15 or 20 drops, three times a day, and frequently increase the dose to 60 drops. There are two fluid extracts in

the market: one of the leaves, and the other of the seeds. I usually give the latter. I have seen several cases of spasmodic torticollis which were relieved by this remedy; and two or three cases of painless facial spasm which were distinctly benefited by its use, in one of which the spasm entirely ceased. I will relate two cases to illustrate the successful employment of conium in spasmodic wry neck:

Case 1.—Mary C., age 26, a shirt maker by occupation. Her general health has always been good, and there is no history of special interest in connection with her present trouble.

She applied for treatment at the Infirmary for Nervous Diseases, Dec. 12, 1887. She stated that two weeks previously there began a sense of trembling in the neck, and a heavy feeling in her head. At the same time the head began turning continually to the left side. On examination the head is found to be rotated strongly to the left shoulder. It can be turned to the front but can be held there but a few moments, when it is again rotated to the left. If the head be held by force in a straight position there are felt strong spasmodic contractions of the sterno-mastoid and trapezius muscles. She can not turn her head as far to the right as to the left. There is no pain or tenderness over the vertebræ, soreness in the sterno-mastoid muscle or sensitiveness over the point of emergence of the spinal accessory nerve.

A blister was applied over the point of origin of the spinal accessory nerve, and galvanism was used quite faithfully for four months; codliver oil was administered, and the patient was advised rest. But little change took place during this time, except that there were two brief periods of improvement, once after the treatment had been changed to the iodid of potassium. At this time the sterno-mastoid and trapezius had become more rigid, and the head after being voluntarily rotated to the front would be drawn to the left within a few seconds, by the spasm of the muscles.

The patient was now ordered the fluid extract of conium in ascending doses, beginning with 5 drops, three times a day; and the maximum dose was 20 drops three times a day. This treatment was pursued for twenty days, when the improvement was so great that the head could be held straight for several minutes. The conium was continued until the patient was well, and when seen a few months later, the patient said she was entirely relieved of her trouble. A year later there was a slight return of the spasm for a few days but this again yielded, in a short time, to conium.

Case 2.—Miss G. M., age 44 years, was admitted to the Infirmary for Nervous Diseases August 28, 1893. Family history unimportant. She has always been well until four years ago. In November, 1888, while at work she became dizzy and fell, remaining unconscious for a few moments. It was found afterwards that her shoulder had been dislocated by the fall. The dislocation was reduced by a physician within a short time, but there was partial loss of sensation in the arm, and this has continued ever since. The head was turned towards the left, immediately after the fall. The left ear almost touched the shoulder, and the head was so much rotated that the chin reached the point of the shoulder. The head remained in this position for two or three days, when it gradually came back to the normal condition. After the first fall she had dizzy attacks every two or three weeks. She did not become unconscious, but for a few moments she could not see and would then fall. The head would assume the position above described after each attack, and would remain turned to the left for a few days, and would then regain the proper position. While the head was drawn to the left shoulder, she could place it in other positions with her hands, but it would immediately return to position of rotation to the left from the spasm of the muscles. After a time the attacks of vertigo became as frequent as two in a week.

In February 1893, she had a severe attack, in which she did not fall, but saved herself by sitting down in a chair. She was not unconscious, and could talk, but became rigid for half an hour. The head was drawn down until it reached the left shoulder. After this attack she was in bed for six weeks, and during this time she states that the whole left side was somewhat contracted. She had had no falling attack since February, 1893. On admission the patient was found to be a well nourished muscular woman; digestion normal; heart and lungs healthy; and the urine free from disease. There is no paralysis of motion, and sensation is normal, except in the right arm and shoulder, where it is delayed and diminished to tactile and thermal sense. The knee jerks are normal on both sides. The elbow jerk is exaggerated on the right side, but normal on the left. When sitting up the head is drawn to the left and rotated so that the chin is turned towards the shoulder. All the muscles which turn the head towards the left seem to be involved, but especially the right sterno-mastoid and left trapezius. She can turn her head to a normal position, but can not hold it there for more than a few seconds, when it is again rotated violently to the left. When she is lying down, the head becomes almost straight, and the spasm of the muscles does not occur. There has been, at times, a sharp pain in the left side of the neck in the trapezius muscle, but it is now a dull and dragging sensation. The facial muscles have never been affected. If the patient places her right hand on the side of her head, so as to rest the head upon it, the head will turn to an erect position. The patient was ordered rest in bed, with general massage, faradism to the neck muscles, and the fluid extract of conium, 20 drops, three times a day to be increased. On September 7, that is nine days after the patient had begun, she was taking 30 drops of the fluid extract of conium, three times a day and it was noted that the head was decidedly better, that she could hold it straighter, and that when sitting up it did not so frequently rotate to the left. On September 14, the patient was still improving. She could hold her head perfectly straight, without support, for a few minutes. She has less of the dull feeling and dragging sensation in the left side of the neck. The improvement continued, and on October 5 the patient was able to hold her head absolutely straight, without any pain whatever. She was discharged from the Hospital, October 16, entirely relieved of the spasm of the neck muscles, and seemed to be in perfect health otherwise.

Some of the attacks from which this patient suffered were undoubtedly hysterical, and it is probable that the spasm of the neck muscles was also of hysterical origin. The trouble had lasted for over four years, and was not relieved until she was placed under treatment by the use of conium.

Dr. H. Augustus Wilson exhibited a patient, age 5 years. Two years and four months ago, patient is said to have had quinsy. Mother says the child suffered continuously for four months, which appears to cast a doubt upon the correctness of the above diagnosis.

The following history was obtained from the mother: At the very beginning of her complaining of sore throat, her neck was stiff so that she could not move it in any direction. There was decided pain throughout the chest and arms. Her sleep was disturbed. Upon rising in the morning it was necessary for the patient to support both sides of head with her hands on account of severe pain. This condition lasted for four months. Four months after she first noticed the crooked head the patient came under observation at the Jefferson Hospital.

The diagnosis of caries of upper cervical vertebræ was arrived at four months after the first appearance of wry neck, by the pressure of most marked muscular rigidity around the neck. The muscles in the upright position were tense, and yielded only upon the patient being placed in a recumbent position or when the head was well supported by the surgeon. The sterno-cleido muscles were in a state of relaxation when the patient was recumbent.

A brace was applied which not only supported the head, but maintained immobility and afforded protection, which she wore continuously until one month ago, when it was removed. During the last two months of the use of the brace, it was modified so as to permit beginning motion of the head, but restrained the tendency of the head to turn to right side.

At this time the following observations were made: Head turned to right side one and one-half inches from symphysis of lower jaw to line of mid-sternum. Flexion and extension now easily performed, rotation of head easily to the right side, but motion to left impaired by right sterno-cleido-mastoid. When the head was so turned without effort on the patient's part, there was but slight over-action of right sterno-cleido-mastoid. When the head is thrown backward both sterno-cleido-mastoids appear alike, and the same obtains when the head is bent forward on to chest. Left shoulder carried a little higher than right. There is a slight lateral curvature, principally noticeable in dorsal region.

No movements are apparent in second, third, fourth and fifth cervical vertebræ, which are less prominent than normal, while the sixth, seventh, and dorsal vertebræ move freely. The brace was adjusted towards the last so as to allow a little freedom of movement before it was taken off—about three months' time was permitted from the time it was rigid to its removal.

Since the discontinuance of the brace, light gymnastic movements have been permitted in order to develop the muscles that had become atrophied from disuse while the brace was rigidly applied. Since the head apparatus was made movable, the patient has noticed a crepitus which was only of periodical occurrence and is now very much less marked than formerly, and appeared to be of the nature of fibrous adhesions.

DISCUSSION.

DR. J. K. MITCHELL—I have very little to say this evening, but should like to report two cases of spasmodic torticollis which present features somewhat different in character from the condition as it usually appears in children, although they were both in young people. My experience has been that this condition is more common in adults, and in them it is exceedingly obstinate to treatment. In children the fixed form is more common, and either form is much more amenable to all remedies. Operation is more likely to be effectual in children than in grown persons, and this is true likewise as to treatment by mechanical measures. Apparatus alone will sometimes effect a cure, as is well illustrated by the interesting case just shown by Dr. Wilson.

My two cases were both in young people; one a man, about 20, whom I saw in St. Mary's Hospital. He had refused operation and come into the medical ward for treatment. He had been handled in all sorts of ways, with drugs and various mechanical measures, without much benefit; nor at first, can I say that he improved at all, notwithstanding everything that we could do for him, until finally I gave very large doses of gelsemium, with decided improvement—which, however, was not permanent until ice was applied. I did not try conium, which Dr. Sinkler found so effectual in some of these cases; but an ice-bag was kept upon the neck day and night, extending from the anterior border of the sterno-cleido-mastoid muscle back to the cervical spine, as low down as the origin of the nerve supplying the affected muscles. This was constantly worn, as I say, and by it the man was much relieved, the pain and spasm both diminishing very much.

The second case was in a young girl and was undoubtedly of an hysterical character, a number of symptoms pointing, as you will presently see, in that direction. She came of a nervous family, and had persistently overstudied at school, which she was obliged to leave on account of the occurrence of a violent headache and a general run-down condition, with the exhibition of uncontrollable fits of temper. Her first complaint was of pain on the right side of the nose, which extended into the eye, and for some time at first was limited to this area. It came on in paroxysms, with some twitching of the muscles of the face and, after it had lasted a few weeks, extended through the side of the face and neck as far back as the spine. It presently began to be accompanied by spasmodic movements of the sterno-cleido-mastoid and trapezius muscles, with great pain in both face and neck. These spasms occurred ten or twelve times a day, and every treatment entirely failed to relieve her. Massage, electricity, drugs—nothing had any effect. I put her to bed, and on a milk diet, and for the first two or three weeks she grew better. Then the spasmodic movements began again, and during the succeeding months increased in their extent so that she had many times a day general convulsions, usually opisthotonic. During the attacks, and sometimes between them, she had double strabismus, complete amblyopia, and pupils rigidly fixed in dilatation. At one time in an access of despair I bled her, having seen on one or two occasions bleeding do good in hysterical convulsions. We drew some eighteen or twenty ounces, and for a week she was much better. Then she relapsed again, and finally, when her family was worn out, and two or three nurses had been used up in the service, I took her to the Infirmary for Nervous Diseases, left her there with a strange nurse and under the most rigid rules of isolation, and from that day she had no attack of convulsions, the pain rapidly diminished, and she is now perfectly well.

The case, as I have said, was of course of an hysterical nature, but at least one distinguished physician, who saw it in consultation with me, was of opinion that she had meningitis at the base of the brain and would certainly die.

DR. J. K. YOUNG—The subject of torticollis has been so thoroughly discussed this evening that there remains but the mechanical treatment to be considered. A great many mechanical appliances have been proposed, but most of them are unsatisfactory when applied.

Torticollis is divided into two classes—congenital and acquired. Congenital cases are those which depend upon deficiency of the cervical vertebræ, malformation, uterine pressure, and adhesion between the amnion and the skin of the face, as suggested by Peterson. The acquired cases may be traumatic, tetanoid, paralytic, compensatory, cicatricial or idiopathic. It is obvious that in paralytic and tetanoid cases no operation is of service. The simplest form of apparatus is that used by Dr. Ashhurst, and as originally suggested by Little. It consists of a piece of adhesive plaster about the head, another one about the upper part of the thorax, and a firm muslin roller bandage from the chest region on the side opposite the chest and front. After the operation the head may be placed in the corrected position by means of plaster-of-paris bandage. The bandage which I prefer in all operations upon the head and neck is the starch bandage which may be strengthened by strips of a wood bandage and strips of aluminium.

Another form of apparatus is the Minerva collar pattern, which may be made of felt, leather, or other material. The apparatus of Barwell, referred to under the title of "a cheap and simple apparatus for the treatment of torticollis and cervical caries," is the butterfly pattern. It may be made of felt, cut in shape and adapted to the head and neck.

Of the more elaborate forms are those on the principle of Jörg. Of this pattern there are several; the best one is that used by Dr. Schaffer of New York. It consists of an apparatus applied to the back from which is erected a head piece, a chin rest, and which is attached by a universal joint which admits of its being placed in position. Sayres' apparatus is made upon the same principle.

Dr. Davis' appliance consists of a broad piece of stiff material fitted to the back, with a peculiar shaped head piece which is attached by means of a screw. Other good examples of this appliance are found in St. Germaine's work, page 239, under the title, Minerv De Bouvier and Ernst of London.

Extension of the head is now used both abroad and in this country in the mechanical treatment of this condition. For this purpose, Hilliard's appliance is more elegant than the ordinary extension head piece. The one I exhibit is the apparatus used by Dr. Willard in the treatment of cervical caries. When used for torticollis it must be longer upon one side so as to make more pull upon the affected muscles.

To render the subject more complete, I should perhaps refer to the method of DeLore of the forcible correction of posterior wry neck. The patient is placed under ether on the edge of a bed, and forcible correction of the deformity is then made. In cases where this operation is employed it is necessary to positively exclude cervical caries. I had related to me by a country practitioner a case in which fatal results occurred in attempting to perform this operation.

I have seen many cases of torticollis follow cold, and in such, medical treatment has been effective in a few days. After tenotomy I strongly urge the use of massage and gymnastic exercises.

Finally, I wish to refer to a number of cases of torticollis ocularis, which I have seen in the past two years. These are due to some loss of equilibrium of the ocular muscles, and they are usually corrected by the application of the proper prisms, the superior or inferior rectus being the muscle usually affected.

When torticollis is due to cervical caries, as it sometimes is, manipulation may produce serious results.

I think I can reply to the question of Dr. Wharton in regard to the occurrence of mastoid tumor. There are two varieties of cases; in one there is simple hematoma, in the other, rupture of the fibers of the muscle. In the latter variety of cases torticollis occurs. Previous to Whitman's paper, all statements upon this subject were without foundation, in fact, and were simply the quotations from the writings of Dieffenbach.

DR. H. R. WHARTON—I agree with Dr. Willard in believing that good results follow operation in cases of fixed wry neck. I have had some experience in the treatment of wry neck both in children and in adults, and I have seen marked benefit result from simple division of the sterno-cleido-mastoid muscles. Dr. Dercum mentions asymmetry of the face in connection with this disorder. I saw this well illustrated in a boy recently under my care at the Children's Hospital, in whom there was marked asymmetry of the face and skull. I think the want of success in a good many operations is due to the fact that many of them are left without after treatment by apparatus, gymnastics, muscle stretching, etc. If this is not done a relapse is sure to follow; in my opinion it is as important as the operation itself. I should like to ask whether any of the gentlemen present have ever had any experience

with wry neck following congenital mastoid tumor. These tumors are often due to the rupture of some of the fibers of the mastoid in labor, and we might, therefore, look for wry neck in connection with the accident. A few of the cases I have seen of such tumors have not been followed by the development of wry neck.

DR. BENJ. LEE—I came here this evening expecting to be simply a hearer and to be instructed, and I need hardly say in reference to the latter expectation, I have not been disappointed. Both the papers and the discussions have been of deep interest.

The only point which occurs to me to refer to is Dr. Wilson's case, concerning which I think we may say that we accept his diagnosis without hesitation. It recalls to me a case which I saw early in my practice, some twenty-five years ago. It was a very marked case of wry neck in a child about 4 years of age. On my first examination I pronounced it to depend upon cervical caries. I employed suspension by means of a ratchet apparatus attached to the child's high chair and in a few days marked improvement resulted. Suspension was kept up constantly during the day; she was never allowed to sit up except when the head was supported. In the course of a few weeks I applied a brace with a head support. The wry neck entirely disappeared and the case eventually recovered.

This leads me to say that I believe that in every case of wry neck in a child we should examine carefully to see whether there is not caries present. I believe the former is frequently an early symptom, and that long before any deformity of the bones can be detected, we may find wry neck, resulting from pressure on the nerves at the point of emergence, or from inflammatory irritation of the cord.

The attempt to overcome the muscular contraction in either spasmodic or spastic torticollis by the sheer force of mechanical appliances, I believe to be very rarely successful.

In this connection I would say, however, that in many cases I have had good results from suspension, carried on systematically and persistently, and have attributed the improvement to diminished irritation of the nerve trunks. Contracted muscles, I think, almost invariably depend upon a central irritation existing at least as far back as the point of emergence of the same from the vertebral column. Dr. Mitchell's case is very instructive and, to me, interesting. I have been accustomed in all such cases to look for irritation in the pelvic region reflected to the upper portion of the cord. A rectal or vaginal examination will often reveal a source of irritation of some form, either rectal, uterine or ovarian in the pelvis. If this is relieved we shall occasionally find to our great surprise and delight a diminution of the central irritation with complete relief of the reflex affection.

DR. F. X. DERCUM—I do not deprecate tenotomy in *fixed* wry neck; in clonic torticollis, however, it is certainly little more than a makeshift expedient. In regard to the tumor noted in the sterno-mastoid muscle in infants, at birth, it is sometimes due to hematoma, sometimes to tear and inflammation of the muscle. When tears occur, fixed wry neck is very apt to ensue. I think that we ought to be more careful in speaking of our results; in cases of spasmodic torticollis, cases are often reported as cured when they are only relieved. Very often indeed we find a case reported as cured and find that the account ends by stating: "In six months a slight return of the spasm occurred," or "a slight movement of the head only could be observed," and other expressions of like purport. Certainly, while drugs such as gelsemium, conium, and various surgical measures give marked relief, they generally fail to cure absolutely.

DR. J. HENDRIE LLOYD—In discussing the pathology of wry neck it seems to me that it might be wise to pay more attention to the condition of the muscles; I know that it is not the fashion to look for the possibility of this disease in the muscles, either in the fiber or in the sheath. I have no scientific data upon which to found a statement that wry neck is a myopathy, but it seems to me reasonable, from the fact that this disease is not associated with any particular nerve trunk, but is distributed through irregular muscle groups. It is popular to attribute all muscular involvement to central disease, which necessarily eliminates myopathia. I do not myself believe that we are on sufficiently firm ground to positively assert that all these troubles are located in some form of meningitis, or irritation of the nerve centers. In recent years it has been found necessary to remove several diseases from the groups of central diseases and to place them among the myopathics. This may yet have to be done with wry neck.

I was much interested in Dr. Mitchell's case because it exhibits a not unusual form of hysteria. Hysterical torticollis has been described by French authors. It is simply one of the varieties of hysterical contracture. In his case the convulsive phenomena, the contracture, the fact the patient was cured by isolation, are all very characteristic of hysteria.

DR. DEFOREST WILLARD—Dr. Dercum has spoken of the unsatisfactory results of myotomy of the sterno-cleido-mastoid muscle. While I grant that in a considerable number of cases myotomy does fail, yet in many instances it gives permanent relief. I have seen cases in which there has been no return of spasm for fifteen or twenty years, and this may be called permanent cure. There are a certain number of spastic cases which can not be relieved by this operation, but in inflammatory troubles excellent results can be obtained from myotomy. I advise first medical treatment; if that fails, then mechanical measures and myotomy; then neurectomy.

In regard to the question of subcutaneous or open section; at the present time we are much more inclined to the open method since there is less fear of sepsis than formerly. In a female, however, a large scar is annoying and in girls I perform subcutaneous tenotomy when it can be done with absolute safety. I make the puncture with a small oculist's knife so as to avoid the entrance of the air even, should a vein be wounded.

In many cases if the sterno-cleido-mastoid is firmly stretched, and if a very blunt tenotome is carried along the posterior face of the muscle, there will be no injury to the vein and the muscle can be entirely severed without danger to the other structures. If such division is not sufficient, the mastoid insertion is also divided and abundant correction is secured. Gymnastics and muscle stretching should be practiced for a long period. I recently saw a patient, a young girl upon whom I operated three years ago; her neck was in absolutely straight position, and it was very difficult to decide on which side the operation had been performed. She had had continued gymnastics.

I have never seen the pleura injured except in one case. It was in a case of Dr. Agnew's, and the patient died from septic pleurisy. I believe this is the only case in this city where death has occurred from such cause.

I think we ought to insist upon gymnastics being carried on after myotomy. Without it there little use of tenotomy or of nerve stretching. When medicines, hypodermics, electricity, myotomy fail, I think it far better to excise a considerable piece of the nerve. It is better to attack the spinal accessory nerve high up, before it reaches the sterno-mastoid, as then there is no reunion. Dr. Rhein recently collected for me forty cases of neurectomy and nerve stretching on record, and his figures give 80 per cent. of cases which have remained cured. There was but one death, and that from erysipelas. Thorough excision is an operation abundantly justifiable in these cases of spasmodic contraction.

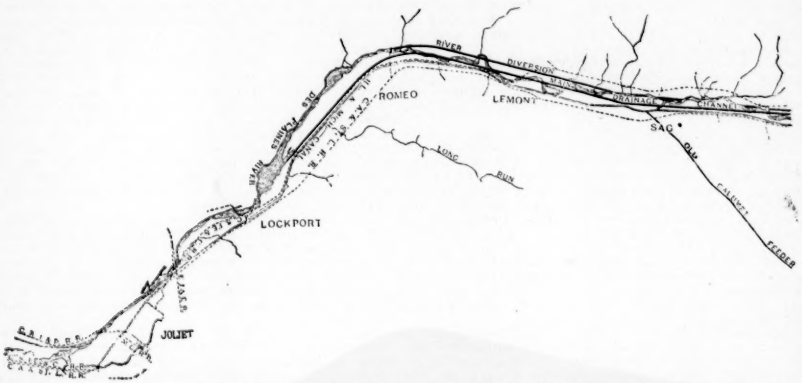
In rotary cases, division of the spinal nerves is the only operation which promises much hope. Simple division of the spinal accessory would not be of much service, but I do not think excision of all the nerves should be attempted when all other means have been exhausted.

If we are positive that spinal caries exists, forcible reduction should be excluded.

THE DRAINAGE CANAL OF CHICAGO.

ONE OF THE GREAT SANITARY WORKS OF THE AGE.

As Chicago is just tasting the first fruits of the work being projected by the sanitary district, the time is propitious for a review of the work on the drainage canal to date, with some account of the relation of the canal to the city's drainage problem. The purpose of the work under way is the construction of a main channel adequate to the disposal of the sewage in the Chicago Valley. The undertaking was immense in its conception and involved the construction of a navigable channel from Chicago to the Desplaines River at Joliet, with a carrying capacity of 600,000 cubic feet of water per minute, and fed from Lake Michigan. It meant the re-linking of two great water systems by a commercial waterway and the solution of a sanitary problem the most intricate of the century. In the course of its prosecution it was necessary to divert the tortuous bed of the Desplaines



River in a straight stretch seventeen miles long, through a channel capable of caring for the flood water from 633 square miles of territory which aggregates at times a volume of nearly one million cubic feet a minute. It is the latter part of the work which is now complete, and it is estimated relieves Chicago of 75 per cent. of the trouble formerly experienced from pollution of drinking water due to backing of sewage in the river.

For the purpose of an intelligent understanding of the drainage problem, as presented by Chicago, and the eventual attempt at solution by means of a drainage canal capable of receiving the total waste, and connecting with the Mississippi system, it is necessary to know something of the topography of the country affected and the peculiar relations of the Desplaines and Chicago Valleys.

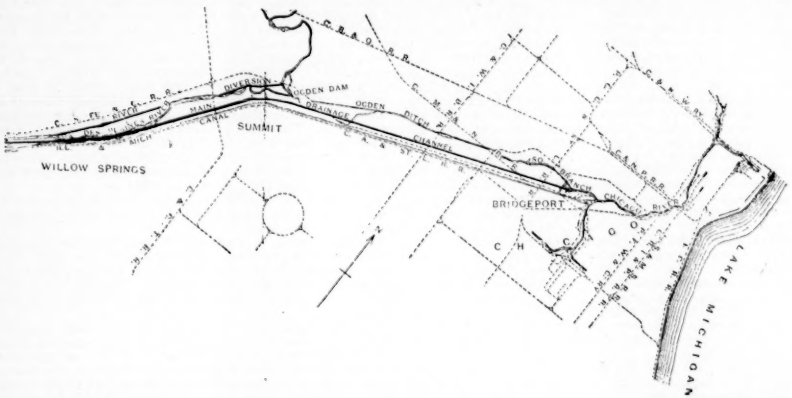
The site of the city is the interior of the low loam and sand ridge which surrounds the southwestern bend of Lake Michigan. This rim or ridge is the lowest point of the great continental water shed which separates the St. Lawrence and Mississippi regions. It trends southward opposite the lake shore about four miles inland at the Wisconsin State line, and gradually diverges until at a point on a line with the mouth of the Chicago River it is ten miles distant. On the east side of this ridge, and between it and the lake, lies the basin containing Chicago, through which run the north and south branches of the river, meeting, and forming a short, common outlet to the lake. On the west side of the ridge and running almost directly south to a point opposite the origin of the south branch of the Chicago River, then trending to the southwest just above the town site of Summit, lies the bed of the Desplaines, an elementary branch of the Illinois River. The watershed of the Desplaines includes a territory of 633 square miles, the north boundary of the oblong tract drained extending into Wisconsin about fourteen miles. The ridge is lowest at the point opposite the Bend in the Desplaines, it here rising but twelve feet above Chicago datum, or the surface of Lake Michigan. Sloping away to the east is a low, marshy tract through which runs what is known as the Ogden Ditch, a drainage trench constructed in the early days of the city and affording an outlet to a swamp region known as Mud Lake. The ditch discharges into the south branch of the Chicago River. South of it is the old Illinois and Michigan Canal connecting the Chicago with the Illinois River at Peru. This canal cuts the watershed above described and follows a course parallel to the Desplaines.

As the city developed in extent and population it was found that the sluggish Chicago River, into which most of the sewage was thrown, had become an almost stagnant cess pool inimical to the civic health not only from the putrescent gases exhaled, but also from its pollution of the lake and consequently the drinking water supply. Heavy rains but aggravated the condition, as the sewage was flushed into the contiguous portion of the lake where for lack of a dispering current the mass of waste lay slowly throwing off its putrid vapors to be carried by the winds through the city.

In 1879 much the same condition of offensive stagnation prevailed in the Illinois and Michigan Canal. At that time this narrow channel had a flow of but 9,000 cubic feet per minute. It held sewage in the proportion of about one to four, and thirty miles below Chicago, where the water fell over a dam, the odor thrown off, it is said, was comparable to that from an emptying privy vault. This nuisance proved so absolutely intolerable to the residents of the interior that Chicago was compelled to erect pumping works at Bridgeport with the object of increasing the velocity and volume of the stream with a view to dilution and more rapid oxygenation. The station was established six miles from the mouth of the Chicago River on the south branch and when completely equipped was capable of throwing a stream equal to 40,000 cubic feet a minute, and the maintenance of a six-foot head. This resulted in an amelioration in the condition of the canal contents, though the nuisance was by no means entirely abated. Its effect at Chicago was to set a current from the lake through the six-mile strip to the south branch, to the pumping works sufficient to effect a complete change in the water once in forty-six hours. This short strip was practically all that was affected. The Stock Yards section with its two and one-half miles of putrescent filth was unprovided for, and the north branch, with the drainage of 172 square miles of urban and tributary territory, lagged with barely current enough to force its slimy length lakeward. Added was the constant menace of sewers belching directly into the lake north and south of the river mouth. Around each exit hung a heavy bank of filth that with every wind off shore was driven to the water-works crib. Thus the city was continually confronted with the manifold dangers incident to drinking its own waste, with the dangers to public health increasing in regular ratio with the progressive growth of the city.

Floods invariably had their issue in great exacerbations of the evil. All the accumulated surface filth was washed onward and, joining with the sluggish sewer way which was the result of the river's evolution, sent a torrent of thick, murky fluid through the channels, stirring up the putrid sediment, and finally casting a disease bearing pall over the Michigan reservoir for miles.

The treacherous Desplaines was a potent factor at times in aiding this distribution. Whenever its volume increased to 50,000 cubic feet a minute the river surged out of its bed and over the Chicago divide, then through Mud lake and along the line of Ogden's ditch to the south branch. Here the sewage current would be turned and the foul mass seek the vicinity of the city water intakes. If the volume of the inundation equalled the amount being worked off by the Bridgeport pumps, the latter were forced to close down,



when the old Illinois and Michigan canal would resume its slow descent as would be evidenced by the complaint wail sent up along its route. These manifold causes of annoyance and uneasiness were evidences of the urgent necessity for a radical change in the city's drainage.

Many schemes of sewage disposal were suggested and considered. That of land disposal was impracticable from its great cost and from its being inapplicable to the stagnant Chicago River. No means of lake disposal could be suggested that secured immunity of the water supply. Chemical precipitation was expensive and did not meet the requirements of the case.

The plan of sanitary dilution was finally settled on as meeting the logic of the situation. The peculiarly advantageous location of the city almost astride the continental water shed with the practically inexhaustible waters of Lake Michigan on one side and the feasibility of a discharge by way of the Illinois and Mississippi Valleys on the other were suggested by the freak of construction left by nature's own hand. At a time not remote geologically the great lakes had found a partial outlet across the Chicago divide. It was purposed to re-establish this connection between the two great water ways. The economical and commercial possibilities of the scheme were almost unlimited as the drainage channel could be constructed of such depth and breadth as to provide transportation for craft of any size, in conjunction with necessary improvements in the channels below. To Chicago however, the great incentive was the desire to work a permanent adjustment of her drainage difficulty. In the projection of the scheme to a successful conclusion the city had to guarantee immunity from pollution to the towns on the route below. The channel was to be of sufficient capacity to afford the dilution necessary and also care for any possible volume of flood water to prevent backing sewage to the lakes. The disposal of the sewage was to be complete and rapid and in as fresh a state as possible; and dilution at the point of discharge of such quantity and character as to procure rapid oxygenation, and immunity to aquatic life.

To meet the requirements the channel had to be of a capacity of 300,000 cubic feet of water per minute for immediate needs, and so arranged that its capacity with a current velocity of 1½ miles an hour could be increased to 600,000 cubic feet a minute. The latter volume would, it was estimated produce sanitary dilution in the sewage from a population of 3,000,000 and was anticipatory of the city's development. Such a channel flushed with the well aerated and oxygen loaded water of Lake Michigan, in conjunction with auxiliary works to meet the peculiar local conditions, gave the city the promise of efficient drainage for all time. It is thought that by the institution of special devices for the destruction of the solid organic waste, the city will be able to send from its doors a sewage stream that will stand a comparative analysis with any natural stream in the State. This last statement refers to pollution only as concerns what a chemical examination will reveal. Biological analyses under these circumstances are as yet so meager in results that the possibility of pollution with pathogenic germs is still a matter largely problematic in its relation to residents some distance from the source of infection.

For the purpose of prosecuting this drainage scheme the Sanitary District of Chicago was organized, Jan. 18, 1890, under a special act of the Illinois Legislature which gave the district power to raise the necessary funds, condemn a right of way, etc. Ground was broken Sept. 3, 1892, not far from the town of Lemont. Since then the work has been progressing satisfactorily and the district is fully expecting to see the completion of the main channel by the expiration of the time set—April 30, 1896.

The main channel is thirty-three miles long and extends from Bridgeport south-west parallel to and north of the old Illinois and Michigan canal. Its objective point is the Desplaines river at Joliet. About ten miles of the route is through clay, ten miles in glacial drift, and the rest in solid rock with only a slight covering of earth. In rock the channel will be cut 160 feet wide at the bottom with almost vertical sides. It will give a current depth of 22 feet. In the dirt cutting the channel at bottom will be 202 feet wide sloping to 290 feet at the top. The first work here will give a water depth of but four feet which, it is estimated, will give a flow of 300,000 cubic feet a minute, a volume sufficient to meet the immediate drainage need. As the population increase demands it, the dirt work may be dredged to the rock work level and eventually provide for the full flow of 600,000 cubic feet a minute.

As the line of the main channel was laid out without any reference to the bed of the Desplaines the latter intersected the route at many points. Taking advantage of the necessity for diverting the river from its course a straight and deeper channel was given it which did away with the obstructing tortuosities of the old bed and increased the capacity to a point sufficient to care for the total flood water from its water shed. For the purpose of more effectively providing against an overflow into the main drainage channel the high water line is raised by a protecting levee throughout the seventeen miles of low marshy country from Summit to Romeo the latter point within eight miles of Joliet. This bank of earth begins nearly two miles north of Summit on the crest of the water shed. At Summit it trends to the south-west closely hugging the left bank of the diversion to the terminus.

The drainage board thought it inadvisable to turn the total flood water into the diversion for fear of damage at points below. To meet this contingency, and also protect Chicago a spillway was constructed at the ridge portion over which the flood habitually flowed. The spillway is a fine piece of masonry 400 feet long and rising 16.25 feet above Chicago datum. It intercepts any flood to a volume of 250,000 feet, five times the amount formerly held back by the water shed. This will protect Chicago from any but the most extraordinary caprices of the Desplaines. The spillway will be brought up to the general height of the levee when the proposed improvements have been completed in the Desplaines bed at and below Joliet.

It is the practical utility of this spillway that Chicago now realizes and its work is the first material evidence of what the Sanitary District is doing for Chicago's relief. Before the completion of the river diversion the Desplaines periodically overflowed its water shed, forced its flood through the Chicago, compelled the stoppage of the Bridgeport plant and in the usual course led to the pollution of the drinking water. That dire consequences were the resultant may be demonstrated by a reference to the heavy mortality in typhoids following the floods of 1892. During this year heavy rainfalls occurred in the early part of May followed by an overflow from the Desplaines lasting twelve days. The flood swept through the Chicago river driving the sewage to the crib. In the latter part of the month the water subsided but June 1 it rose again and until July 6, with the exception of four days in the middle of June, the Bridgeport works were compelled to shut down. When the flood was at its height the volume of overflow was 600,000 cubic feet a minute and the intake at the water works crib was drawing in sewage almost pure and undiluted. In the district supplied by this intake typhoid fever soon became epidemic. The health department's records show that during July, 211, August, 179, and September 138 fatalities resulted from this disease, as against an average of sixty-six deaths in preceding months. In the district directly supplied the number of typhoid cases increased almost five-fold.

During this flood period the Bridgeport pumps were useless forty-three days. Had the spillway been in operation that year the pumps would have been overcome but seven days altogether. The flood scale at Riverside shows that even this would have been distributed at intervals of two or three days each and could not have led to a widespread pollution. The volume was not more than sufficient to neutralize the induced current in the Chicago river, not enough at least to back the sewage to the crib.

Relieved from the evil ensuing from deluges of flood water from the Desplaines valley Chicago has to contend with no flood water but that from its own valley. This comprises the scourings from a shed 272 square miles in extent. The completion of the main drainage channel will, *per se*, care for this.

While this drainage channel is competent to do the work claimed for it, it is really but the lever which those conversant with all the facts in the case expect to use in securing coöperation in solving the rest of the problem. In itself the channel is not practically available until after a vast amount of auxiliary work has been prosecuted. The present work, it is estimated, will cost between $25,000,000 and $30,000,000. As much more will have to be expended before Chicago obtains her ideal of drainage. The general expectation has been that the water supply from Lake Michigan is to be fed through the Chicago River and its south branch. In its present state the river channel is so narrow as to render it physically impossible for the south branch unaided to feed the amount of water required in the canal. The expense in condemnation proceedings incident to sufficient enlargement of the river bed is practically prohibitive, as row after row of valuable manufacturing and other plants would have to be sacrificed. Even were the improvements carried through regardless of the expense to be incurred, it is freely acknowledged by competent engineers that the physical features are such that perfect drainage could not then be secured without a further immense outlay in lateral branches and pumping works. These adjuncts to the main channel are required to overcome the difficulties presented by, 1, the Stock Yards district; 2, the large territory whose sewers discharge directly into the lake; and 3, the thickly populated district through which the north branch descends.

The proposed canal inlet from the Chicago River strikes the west fork of the south branch almost directly from the southwest. The east fork of this branch strikes the main body at an acute angle coming from the south. This latter fork is two and one-half miles long, including the Stock Yards slip, and is what is called a "dead end." There never has been a sufficient circulation through it, and as it receives the heavy Stock Yards sewage, beside several square miles of urban drains, it lays the year round a stagnant mass of foul, stench exhaling, disease germinating filth, reaching its mephitic influence over the densely populated district adjacent. Its constant power for evil is indicated by reference to the disease statistics of this section, showing a remarkable prevalence of diarrheal and miasmatic diseases, with a mortality rate for these troubles the highest in the city. In no other portion of the city does the principle of survival of the fittest work its ends more demonstrably. Only the most strongly constituted babies survive their babyhood in this neighborhood. The infantile mortality rate excels that of any other portion of the city, which may be minus its cesspool, though as densely populated. The Stock Yards cesspool will have to be drained. The drainage channel as now contemplated will not give the circulation needed. Two suggestions for auxiliary works have been made. One is to run a lateral channel from the main canal through the district to the lake. This channel would drain directly and beside help to feed the diluent wanted for the central drainage system. The other scheme contemplates a large feeder to the lake from a point further down the river. Then the Stock Yards sewers would be centered at a point from which their contents could be pumped into the canal. In this instance the "dead end" would be filled in.

The sewers now discharging directly to the lake would be headed toward the canal, an artificial circulation to be established where necessary.

For the solution of the North Side problem the concensus of opinion seems to favor the extension of the north branch, by a navigable channel, to the north and possibly around the suburb of Evanston to the lake. This would secure a continuous natural flow without the necessity of pumping works.

One other phase of the drainage question may be noticed in passing. South Chicago is a rapidly developing, thickly populated section on the lake shore at the mouth of the Calumet River. The latter stream empties its drainage contents about twelve miles from the mouth of the Chicago River. It may some day complicate Chicago's drainage scheme by pollution of the lake. In anticipation of this it is thought possible that an additional channel may be constructed which will drain the Calumet region into the main canal.

In connection with the inquiry into the status of the drainage canal work the JOURNAL representative spent three days among the workmen's camps with a view of learning the sanitary and hygienic condition prevailing. In many instances the state of affairs is deplorable. Health regulations are disregarded entirely and the housing of the men more like that of neglected swine than of human beings. This seems due entirely to the culpable indifference of the contractors. The latter are bound by clauses in their agreement with the Sanitary District to observe the sanitary regulations. The latter are issued by the drainage board and if lived up to would secure everything healthful and disease preventive. With the lax methods in vogue no arrangements are made for disposal of sewage, shacks and shanties are located on the surface of soggy and marshy pieces of ground, insufficient privy accommodations are provided and only the scantiest provision made for conveniences of personal cleanliness.

As consequences of this rough go-as-you-please, slops and kitchen refuse are thrown on the ground from the kitchen doors, through gaping cracks in poorly laid floors arise the noxious gases of decomposition from the sewage impregnated soil, and surrounding the houses are circles of human excreta.

On comment being made the answer is that regulations are impossible of enforcement among the class of men employed on the work as it is impossible to compel them to use privies and dispose of the slops at a distance from their shanties. The excuse carries as far as concerns the personal habits of the men as most of them are the scum of immigration. It makes no defense however against the lack of drainage facilities and the failure to elevate the shanties to admit free circulation underneath them. In the neighborhood of Romeo where the laxity is most noticeable there is an abundance of stone which might be used for foundation purposes. It could be used at little extra expense.

Coming east from Romeo there is a much better condition. In the camps at the Chicago end of the route the contractors heartily coöperate with the health authorities. Ditches for drainage are put in, the men are comfortably housed, slops are collected in barrels and hauled to points remote from dwellings, and privies are so constructed that they may be flushed occasionally.

Dr. William Martin, the health inspector for the Sanitary District, with the aid of the sanitary police does all that is possible for the relief of the men. The great difficulty encountered is the impossibility of enforcing the health laws of Illinois. They entail no penalty in their breach and observance can not be compelled. Under the circumstances the most that can be done is to secure pure water by driven wells with impervious casings, keep close watch of the food and condemn bad meats and secure by diplomacy as much else as the greed of the contractors will admit.

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SATURDAY, JANUARY 20, 1894.

THE ANNUAL HOSPITAL ACCOUNTING.

"I'll jest a twelve month in a hospital."—*Love's Labor's Lost.*

The annual crop of hospital reports is now ripe; as the news columns of the JOURNAL this week bear ample testimony. The reports, many of which are filled with details which only interest their respective localities, are yet unfailing indexes of the great charitable impulses of our country. They show in general that the hospitals are growing more and more useful to the communities in which they are placed, and that the equipments are vastly superior to those of even a decade ago. Nor is it uninteresting to the metropolitan physician to learn that the miners of Cripple Creek are to build a cottage hospital fitted with modern appliances and constructed in accordance with the latest principles of hospital construction. The great school of experiment and clinical observation from the earliest times to the present, with exception hereinafter noted, has been held in the hospital amphitheater and at the bedside. There were Asclepiades before there was a Hippocratic era, and the "handwriting on the wall" in the days of Hippocrates was the clinical notes thereon recorded of the patients treated therein.

It is thus apparent that the science of medicine was redeemed from mysticism through hospital observations. Wise, in his interesting history of medicine among the Asiatics, says that in the time of the great ASOKA, B.C. 220, "the Buddhist priests formed themselves into companies, to make pilgrimages from town to town, and from temple to temple, with the object of conversion and for the propagation of their benevolent schemes, among which was assistance to the sick.

"To South Behar, people repaired from all the provinces where the delegates remained in towns, and each establishment had a *medicine house* of happiness and virtue; more particularly in the west of India where the Banians and Jains were numerous. The poor and the orphan, the lame and the sick of the provinces repaired to these houses where they had all that was necessary for their wants. Physicians instructed in the ancient Hindoo medical sciences, examined and treated their complaints, and they were provided with food and drink according to their experience of what was right, and proper medicines were administered to them. Nothing was omitted that could contribute to soothe and gratify them, and to cure their diseases. At the same time the utmost liberty was given them, so that they could leave the hospital whenever they desired."

The exceptional humanity of the Buddhists induced them as well to build hospitals for animals, and at Surat there still remains an animal hospital which is now nearly two thousand years old.

"This curious institution," says WISE, "is supported by one anna per cent. on the rupee of the merchant's clear gain, to which is added the fines for certain venial offences, under the supervision of the chief Banians. In 1770, when trade had decayed, the revenue was upward of £600 a year, and so careful were they of animals, that bread and milk were provided for two which could not crop grass. The hospital consisted of twenty-five acres, surrounded by a high wall, divided into courts, and defended by sheds and wards for the accommodation of the animals." "If proper inquiry were directed to this building," writes PRINSEP, "I dare say it would be discovered to be a living example (the only one that has braved twenty centuries) of the humane acts of ASOKA, recorded at no great distance, on a rock in Guzerat."

In the days of Roman ascendancy the hospitals were regarded as an asylum offered by charity to the sick poor, and no longer as in the Hippocratic period, schools for young physicians. The oldest hospital of our era was the hospital founded by Saint Simon, in Constantinople between the churches of Saint Irene and Saint Sophia. In the time of Justinian the hospital was embellished and rebuilt.[1]

Much could be written on the history of hospitals, as recorded by historians, but to us we think that very much of the knowledge of the day, and that which has placed our time in possession of so many scientific facts of use to human kind, has come from hospital observations. Some of the humblest of them may furnish material wisdom of the highest character.

THE WHOLESOMENESS OF SUBSOIL WATERS.

PROFESSOR ROBERT KOCH, in his paper on "Water Filtration and Cholera," a translation of which has been published in some of our journals, attributes the preservation of Altona from cholera at the time when Hamburg was so severely affected to the use of properly filtered water. These two cities (and a third, Wandsbeck, which like Altona owed its preservation from the epidemic to the purity of its water) are contiguous, forming a single community, yet hav-

[1] Sprengel.

ing separate systems of water supply. That of Hamburg is taken unfiltered from the Elbe above the city; that of Altona from the Elbe below the inflow of the sewers of Hamburg. Cholera restricted its ravages to the districts of the Hamburg water supply. In one street which for a long way forms the boundary between the two cities, cholera prevailed on the Hamburg side but did not cross to the side supplied by the Altona water works. The filtration at these works removed the germs poured into the river with the Hamburg sewage. The conditions of an efficient filtration such as that at Altona are stated to be a layer of sand at least thirty centimeters thick, the restriction of the filtration to a rate of 100 millimeters per hour, and the freedom of the filtered water from germs in excess of 100 per cubic centimeter. The slime deposited from the water is the true filtering medium, the sand layer constituting merely the basis on which it is formed. The value of artificial filtration having been thus premised, PROFESSOR KOCH points out the vast stores of naturally filtered water that are to be found in the subsoil, even in a soil which has been much and for a long time contaminated, as in that of the city of Berlin. "All liquids," he argues, "even those most strongly contaminated, must, before reaching the depth from which the water is raised, pass through thick and efficient filtering layers by which they are rendered absolutely free from infectious matters. Especially is this the case if the boring goes through an upper impermeable layer into deeper sand or gravel layers containing the waters."

In the last sentence he recognizes the distinction which in this country we make between shallow wells and deep wells. Our sanitarians do not question the purity of water brought from beneath an impermeable stratum, but they have no faith in the wholesomeness of the water derived from shallow wells. PROFESSOR KOCH attributes all epidemics from wells to contamination from unfiltered inflow from the surface by cracks and fissures, and proposes to remedy this by inserting an iron pump into the well and filling up around the pump with gravel and sand so as to ensure the filtration of all inflow to the lower end of the pump. Many of our municipal health officers have during the past fifteen or twenty years closed up all shallow wells within their jurisdiction, and it is doubtful if even on the dictum of the distinguished bacteriologist they would authorize their reopening. The filtration of subsoil water into shallow wells may be efficient against cholera in view of the experience at Altona; but it was the danger of the propagation of typhoid fever which led to the closure of our shallow wells in thickly settled localities. This action was suggested by the occurrence of many instances of the propagation of typhoid by subsoil water, and the subsequent lowering of the typhoid rate proved the wisdom of the measure. The life history of the bacillus of typhoid has not yet been written in full, nor has the efficiency of the natural filtration through the upper layers of the soil been demonstrated satisfactorily as regards this bacillus. We confess, therefore, to the same fear of its presence in the water of shallow wells, that led our health officers to prohibit the use of such local supplies.

YELLOW FEVER.

The raising of the quarantine at Brunswick on November 30 was truly a day of Thanksgiving for that stricken community. For more than three months the inhabitants were practically isolated from the rest of the world, with the means of livelihood cut off, and the impending danger of contracting the disease before the anxiously looked for frost should make its appearance.

The probabilities are that if an efficient State health organization had existed in Georgia, the splendid record made by the State Boards of Gulf and South Atlantic States, and the Marine Hospital Service, in the prevention of the introduction and spread of yellow fever for a number of years past, would not have been broken.

Under the stimulus of the AMERICAN MEDICAL ASSOCIATION, Georgia was one of the first States to pass an act creating a State Board of Health, but unfortunately no money was appropriated to give effect to the law.

The suffering and loss caused by the Brunswick visitation can not be estimated in dollars and cents. Georgia is one of the few States in the Union that has not made provision to protect the lives of its citizens from pestilence. Will the Empire State of the South longer remain under this stigma? There is a movement now being made to secure the necessary legislation, but it meets with opposition. Some of the opponents seem to think that quarantine alone is necessary, and that that can be better performed, and with no expense to the State, by the National Government. This is true to a certain extent, but quarantine is only one of the sanitary agencies necessary to protect the public health of a State. Under our form of government, to provide proper sanitary protection, the municipality has a duty to perform, and if, as frequently occurs, the jurisdiction of the municipality is too limited, then the duty of the State comes in, and in like manner that of the National Government, when the State system is inadequate.

It is very important, in the interest of epidemiology, that the true history of the introduction of yellow fever at Brunswick, and its subsequent breaking out after it was thought to be stamped out and so declared officially, should be known to the public. The disadvantages under which the Marine Hospital Service labored were many, and taking everything into consideration, the officers of that Service deserve credit for limiting its spread.

CONTRIBUTORY NEGLIGENCE OF PATIENT AS DEFENSE TO CHARGE OF MALPRACTICE.

One of the most interesting decisions rendered for some time in a malpractice case, is that of the Appellate Court of Indiana in YOUNG v. MASON (decided Nov. 22, 1893, and just reported, 35 Northeastern Reporter 521). In this case the jury returned a general verdict for $1,000 in favor of the party claiming injury, and also returned answers to forty interrogatories submitted on behalf of the physician sued. Now answers to interrogatories override a general verdict when both can not stand together, but not where they can be reconciled.

It was clearly shown by the answers in this case that the physician possessed fair and ordinary knowledge and skill, also that the manner in which he dressed and treated the injuries of this patient was, with one exception, such as is approved and followed by the most skilful surgeons in that vicinity, and which is approved by the standard authors and text-writers upon the subject of surgery. The exception was that the answers did not conclusively show that he exercised due skill and care in reducing a fracture near the wrist joint. This act, with other acts of alleged negligence, it was charged, caused a certain stiffness of joints and the loss of the use of the arm, for which damages were sought. But the answers also showed that the patient took her injured arm out of the sling, contrary to directions, and placed it on her lap, window sill, and table, and that she also refused to allow the physician to use passive motion at the times, and to the proper extent.

Indulging every reasonable presumption and intendment in favor of the general verdict, and granting that the party who brought the action established to the satisfaction of the jury every fact put in issue, except when the answers to the interrogatories affirmatively and conclusively showed to the contrary, and giving a fair and reasonable construction to the facts, which were clearly, specifically, and without conflict or contradiction found in the answers, the court concludes that the negligence of the physician in failing to reduce the fracture near the wrist, and the refusal of his patient to allow him to subject the injured joints, at the proper times, to passive motion, concurred in producing the injuries for which recovery was sought.

The authority of other courts is quoted to the effect that, "the law has no scales to determine in such cases whose wrong doing weighed most in the compound that occasioned the mischief." "It is the duty of the patient to submit to the treatment prescribed, and to follow the directions given, provided they be such as a physician of ordinary skill would adopt or sanction . . . . A person can not recover from another for consequences attributable in part to his own wrong."

In consequence of the answers to the interrogatories showing, as stated, that the injuries complained of were certainly aggravated by the misconduct of the patient, the trial court, upon motion made in behalf of the physician, set aside the general verdict of the jury against him, and rendered judgment in his favor. This the Appellate Court affirms.

The law on this very important subject is further illustrated and summed up, by the Appellate Court, as follows: Suppose a man fractures the bones in his leg below the knee, and calls a surgeon to treat the injuries, and the surgeon negligently fails to properly reduce one of the fractures, but in all other respects gives proper treatment, and the patient, in disobedience of the directions of the surgeon, negligently removes the bandages used as a part of the proper treatment by the surgeon, or is otherwise guilty of contributory negligence, and such combined negligence of the surgeon and patient unite in producing a shortness and stiffness of the leg, for which injuries an action is brought against the surgeon, can the patient recover? The patient is certainly not responsible in such case for the original negligence of the surgeon in failing to properly reduce the fracture, but this negligence of the surgeon unites with the subsequent contributory negligence of the patient in causing the shortness and stiffness of the leg. Now it seems clear, under such circumstances, and the authorities cited, that the patient can not recover for the consequent shortness and stiffness of the leg.

Where both the surgeon and patient are free from negligence, or where the surgeon and patient are both guilty of negligence, or where the surgeon is free from fault and the patient is guilty of negligence, no recovery can be had against the surgeon in any case. It is only where the surgeon is guilty of negligence and the patient is without negligence on his part contributing in any degree to such injuries that the patient can recover damages of the surgeon.

SOCIETY NEWS.

The Minnesota Academy of Medicine met January 3 at the Ryan Hotel, St. Paul. The program submitted was: "Neurological and Psychological Freaks," a paper by Dr. W. A. Jones and a discussion led by Dr. R. O. Beard; paper, "Brain Lesions—The Result of Injury Without Apparent Fracture," Dr. C. H. Mayo, and a discussion led by Dr. W. A. Jones; "A Consideration of the Subject of Ovariotomy," with report of thirty-three cases, by Dr. A. McLaren.

Proposed Medical Society Building.—The Hartford Medical Society held its annual meeting at the residence of Dr. Gurdon W. Russell January 1. By the terms of the will of Mrs Mary C. Hunt the Society will receive $20,000 for a new building, providing a lot is secured within two years. A subscription for a lot was started, Dr. G. W. Russell heading it with $1,000, and Dr. G. P. Davis following with $500. A canvass will be made and it is expected that the balance will be easily raised. After the meeting refreshments were served.

These officers were elected for the ensuing year: President

H. P. Stearns; Vice-President, A. W. Barrows; Secretary, Gideon C. Segur; Treasurer, C. D. Alton; Librarian, E. K. Root; Censors, S. B. St. John, G. R. Shepherd, W. M. Hudson; Trustees, G. W. Russell, M. Storrs, A. W. Barrows; Executive Committee, Gideon C. Segur, C. D. Alton, E. K. Root; Building Committee, G. W. Russell, M. Storrs, G. R. Shepherd.

Baltimore Medical Association.—The annual election of officers of the Baltimore Medical Association was held Jan. 8 at the rooms of the Medical and Chirurgical Faculty, and resulted as follows: President, Dr. David Street; First Vice-President, Dr. H. H. Bredler; Second Vice-President, Dr. E. D. Ellis; Recording and Reporting Secretary, Dr. Eugene L. Crutchfield; Corresponding Secretary, Dr. J. D. Farrar; Treasurer, Dr. J. Ingle; Executive Committee, Dr. John I. Pennington, Dr. Steven Crowe, Dr. J. Edwin Michael; Committee of Honor, Dr. George J. Preston, Dr. Chas. H. Jones, Dr. John W. Chambers. After the meeting the physicians adjourned to Tierney's where supper was served.

New Haven Medical Society.—The 91st annual meeting of the New Haven Medical Society was held at the residence of Dr. S. Hartwell Chapman, on Church Street, January 3. There were thirty members present. Reports of Secretary and Treasurer were read and officers were elected as follows: President, Dr. Henry L. Swain; First Vice-President, Dr. J. W. Seaver; Second Vice-President, Dr. T. M. Cahill; Secretary, Dr. J. H. Townsend; Credential Committee, Drs. Francis Bacon, T. E. Beckwith; Finance Committee, Drs. H. Fleischner, C. A. Lindsley.

Dr. Gustavus Eliot, the retiring president, then read a paper on "Reciprocal Duties of the Senior and Junior Members of the Medical Profession."

Kansas Medical Societies.—The joint sessions of the Eastern Kansas and Golden Belt Medical Societies were inaugurated at Topeka January 4, and concluded in the evening. Fifty members attended. Among others: Dr. W. S. Pickard, Burlingame; Dr. L. Reynolds, Horton; Dr. L. H. Murphy, Minneapolis; Dr. A. B. McCandless, Horton; Dr. Wm. B. Dewees, Salina; Dr. H. H. Sutherland, Herington, Kan.; Dr. J. N. Ketchersid, Hope; Dr. J. H. Wetherbee, Hutchinson, Kan.; Dr. B. E. Fryer, Kansas City, Mo.; Dr. J. F. Binnie, Kansas City, Mo.; Dr. Jas. Haigt, Wetmore, Kan.; Dr. T. M. Zane, Osage City; Dr. A. H. Cordier, Kansas City, Mo.; Dr. Geo. Halley, Kansas City, Mo.; Dr. J. W. Felty, Abilene, Kan.; Dr. J. Block, Kansas City, Mo.; Dr. O. C. McNary (Surgeon Soldiers' Home), Leavenworth; Dr. W. S. Bunn, Lawrence, Kan.

Dr. Jas. Haigt of Wetmore, Kan., advocated the electrical method of curing consumption, using the galvanic current. On the electrodes which he uses he places iodin; this is "driven" into the lung tissue, and by this means a cure is effected. He cited a number of cases in which he had brought about remarkable cures.

Dr. W. B. Dewees of Salina, in his paper on "Proper Diagnosis," said that the best position to make an examination is in the erect posture and not the recumbent posture.

Dr. J. Block of Kansas City, Mo., presented a paper on "Some Practical Observations on Strictures of the Urethra."

Dr. J. L. Gilbert of the Kansas Medical College, read a paper on the subject of cancer, in which he advocated the theory that its growth and development is due to a germ.

American Electro-Therapeutic Association.

The Third Annual Meeting Held in Chicago, Sept. 12, 13 and 14, 1893.

AUGUSTIN H. GOELET, M.D., President.

(*Continued from page 70*).

On motion of Dr. Hayd, seconded by Dr. Newman, the papers of those not present were ordered to be read by title.

A paper by DR. DANIEL B. D. BEAVER, of Reading, Pa., was then read by title, entitled

NOTES UPON SOME USES OF GALVANISM IN SURGERY.

A respectably large experience with electricity, covering a period of thirteen years in public and private practice, in the treatment of nearly all the diseases to which this remedy has been commonly applied, would suggest comparison of methods and results, but as there is an abundance of material for discussion at this meeting it seems more desirable to present, as my triennial contribution to the transactions, a brief summary of observations which are comparatively new.

These notes, then, will invite your attention to the use of galvanism in a few surgical affections only, in which it has heretofore not been used, or of which so few cases have been reported that the value of its application has not yet been determined; and they are: goitre, coccydinia and ulcers.

In the treatment of goitre, my experience with electricity is limited to two cases, but as I did not employ it until after iodin and iodoform internally, and compound solution of iodin and carbolic acid injected into the enlarged gland had failed, these are exceptional ones and therefore of themselves worthy of record.

Case I—was in the person of a man, aged 73, a frescoer by trade, whom I was called to see December, 1891, and of whose case I have these notes:

He noticed the presence of a small tumor on the right side of the neck nine years ago, which had attained the size of a walnut a year ago. From that time it grew rapidly, so that it is now the size of a large fist. It occupies the right anterior third part of circumference of the neck, extending from the sternum and clavicle to the lower maxillary bone. Below, it covers the sternum and inner half of the clavicle, and above dips behind the ramus of the jaw. Laterally it displaces the common carotid artery backward and outward, so that it can be seen beating in a line dropped from the prominence of the mastoid bone. This vessel is considerably larger than the corresponding one on the left side, and sends a large branch from its middle third to the growth. The superficial veins over the tumor are dilated. The tumor is hard, slightly elastic, and smooth on the surface. It has displaced the trachea and larynx toward the left so that the prominence of the thyroid cartilage is directly under the left angle of the lower jaw, and the trachea can be felt distinctly for an inch below the larynx in this abnormal position. The left lobe of the gland is about the size of a hen's egg, but lacks the hardness of the other.

He seeks relief because for the last month he has been taken twice or thrice a week with what he calls choking spells, every one of which he and his wife feared would be fatal. The description they give of these spells indicates them to be due to spasm of the vocal bands. His voice is variable and uncertain at all times. Occasionally it is full and sonorous, but generally of a loud whisper. He is barely able to swallow solid food, and must take liquids very carefully to prevent them entering the larynx. He has lost flesh and strength.

The indications for treatment in this case were very distinct. It was very evident that nothing but removal of part or all of the growth would give relief. Extirpation with the knife in a person of his age and condition was out of the question. My previous success with preparations of iodin, in the treatment of goitre, led me to try iodoform in 3 grain doses, thrice daily, although I belived the hypertrophy to be of the fibroid variety. This was continued a month with apparent benefit, and during this time three injections of a 7 per cent. solution of carbolic acid into the growth were made. Then the patient was taken with the grippe, and was very sick for two weeks. This left him with intense neuralgic pains in the right face, neck and shoulder. The tumor, which had become smaller under the effect of the injections and iodoform, now increased in size and became painful, and tender to pressure on the anterior surface. A week later a fine aspirating needle was driven into the tender area and a drachm of blood and pus withdrawn from a depth of one inch. The patient's dread of operations of any sort would not permit me to lay open the suppurating cavity, but the relief which galvanism gave to his painful face, neck and shoulder induced him to accept my proposition to apply electricity to it through a small opening. So then I punctured the overlying tissues with a bistoury and introduced an insulated steel needle attached to the negative pole of a 50-cell Barrett dry battery.

From this on, to February 1, electrolysis was performed once a week, for ten minutes, with the anode on the neck behind the tumor and the kathode in it. During the seance the needle was pushed into and withdrawn from three places and the current interrupted with each withdrawal and gradually increased to the full strength of the battery with each puncture.

The disintegration of the growth was so rapid that in four

weeks it lost one-half in size. By this time the patient was able to take all kinds of food and gained much in strength and appearance.

On April 21 my notes say: Electrolysis has been performed once a week since the last note, with the needle inserted to a depth of one to two inches in different directions from the initial opening. During the last three weeks it has been apparent that a large portion of the tumor has been dissolved and has left in its place a cavity, for a probe can be pushed in to a depth of three inches and the point moved quite freely in all directions without obstruction. There has been a constant oozing of purulent fluid from the opening through which the needle is introduced. Although a number of large arteries are seen coursing over the surface of the tumor, indicating a free supply of blood, the electrolysis has never been followed by hemorrhage. The patient has taken no medicine except elixir of iron, strychnia and quinin.

June 12. Electricity was applied last on May 12, since which time he has passed through an attack of inflammatory rheumatism affecting the right wrist and shoulder.

August 8. The tumor is now the size of a hen's egg. The enlargement of the left lobe has disappeared entirely, and the trachea and larynx have returned to their normal positions. The voice and deglutition have become normal. The distended right carotid artery, which had been displaced backward and outward by the growth, has receded entirely out of sight. The circumference of his neck has been reduced from eighteen and one-half to fourteen and three-quarter inches, and he says it is about its natural size. His appetite is good, his strength and appearance improved, and he says he is in better health now than he has been for many years.

I saw him last on April 13, 1893, when he told me that he was enjoying good health and had resumed his work during the winter. There was then still a small opening over the remains of the tumor, from which a little blood-stained fluid oozed occasionally. He has since then died of what was reported as an affection of the heart.

The diagnosis of fibroid disease in the right lobe is confirmed by the rapid disintegration of the growth. The disappearance of the hypertrophy of the left lobe under the influence of local treatment of the other side would indicate that it was of a different character. It is not probable that it would have thus vanished if had it been of cystic or fibroid character. It was vascular or parenchymatous, or both. That these two types are often mixed, or at least indistinguishable is quite probable. The purely vascular can be differentiated from the other forms by its greater compressibility, and by its sudden decrease in size upon puncture with a needle. The latter feature was very marked in two cases in young women, which I treated with injections of carbolic acid.

In this case the choice of treatment lay between injection, the use of a seton and the method pursued, which was a combination of injection and electrolysis.

Electricity with antiseptic precautions, with a view of absorption of the morbid tissue would have been too slow. The necessity for rapid removal and relief, and the patient's objection to anything with the appearance of a surgical operation, decided against the seton on the one hand and antiseptic electrolysis on the other. Electricity was selected for its direct resolvent and destructive action on the tissues. It may be said that the suppurative process, which was undoubtedly started by one of the injections of carbolic acid, would have continued without the aid of galvanism, but my observation of that process under other conditions convinces me that it would not have been as speedy nor as safe. There would probably have been openings in several directions, with burrowing between the overlaying structures. This would have increased the danger of septic infection and constitutional irritation. With the use of the needle, one passage through the superficial tissues was kept patulous, and the destructive punctures made within the tumor all radiated from that passage, thus securing drainage in that direction, and in the greatest possible degree preventing it in other directions.

The same objections can be fairly urged against the seton, especially in the case of so large a growth. Two openings would have been necessary from the beginning; they could not have been kept as free from obstruction because of the presence of the seton itself; the destructive action could not have been directed at will to any particular part of the interior, and the wound could not have been kept so clean as was done with the use of the needle.

Aside from the time when the patient suffered with the grippe, and later with rheumatism, there was practically no constitutional irritation present.

The result was very satisfactory, and in my judgment was due to the use of galvanism.

Case 2—of goitre occurred in a woman aged 50; had been of slow growth, and affected the right lobe of the gland. The tumor was the size of a pullet's egg, with smooth surface, and so elastic that this feature, in connection with the fact that she had taken iodin for two months without benefit, led me to regard it as one of the cystic variety. Accordingly a medium-sized aspirator needle was plunged into it and the barrel of the syringe exhausted while the needle was slowly withdrawn. The result was the extraction of about two drachms of blood. The tumor was not compressible like the vascular growth, nor did the presence of the needle contract it momentarily. It must have been of a parenchymatous or mixed character.

One week later, and once a week thereafter for two months, galvano-puncture was applied, with a steel needle for the negative electrode, and from fifteen to twenty-five milliampères for five minutes, with antiseptic precautions. The seances were not followed by any unpleasant reaction. At the end of the two months the tumor was reduced fully one-third in size, and harder to the touch. She was then advised to discontinue treatment, with the prospect of seeing further decrease in size.

Of coccydinia I have only two cases to report, not because I have not seen more, but because they are the only ones in which other and more convenient remedies failed. In my experience this disease has never appeared in the male, and in women could only be traced to rheumatism, lithiasis, uterine disease or derangement of the nervous system, and remedies suitable to these disorders were always tried before electricity, because the latter requires much more time on the part of both patient and physician, and consequently is more expensive and objectionable to both.

Case 1—presented itself in a lady of 20 years, who had been ill upward of a year with "pain in the lower end of the spine and soreness in the mouth of the womb," as she termed it. One attendant had given her Mitchell's rest treatment three months without benefit, and his successor had her wear a Sayre's plaster jacket eight months with equally poor effect. There was tenderness over the lower dorsal region of the spine, with the symptoms of spinal irritation, slight tenderness of the ovaries, excessive tenderness of the coccyx, and a peculiar and rare condition of the mucous membrane at the os vaginæ, which I had met only twice before, and have not yet seen described in print. The papillæ on the inner surface of the nymphæ were hypertrophied into the form of villi, so long that they could have been cut with scissors, and so excruciatingly sensitive that the least touch made her writhe with pain. Previous experience induced me to sear the whole affected area with a red-hot electric cautery knife. This remedy brought prompt and complete relief. Attention was next directed to the ovaries, to which galvanism, positive pole in the hands or on the nape and negative in vagina, was applied once a week, in association with bromid of potassium, arsenic, phosphorus and strychnia in succession. After six months' treatment her condition had improved very much. All the aches except that at the end of the spine had disappeared—the coccyx was still tender.

The galvanic treatment was now confined to the spine with the anode to nape and kathode over the coccyx, and applied by an assistant for two months without any apparent benefit. Then the most tender spot on the coccyx was sought and found and a steel needle attached to the kathode driven into it, and as strong a current as she could bear turned on for five minutes. At intervals of a week, two more punctures were made, and at her next visit for the fourth she reported herself well, and said the needle had cured her. Two years have elapsed since and she is still in good health.

The other case is of recent occurrence and is just about getting well after one month's galvanism with cotton-covered kathode over the coccyx and anode on the nape, which was preceded by two months' medication by her family physician. As the improvement is too recent to permit a positive opinion as to its permanence, only the progress of the cure thus far can be reported.

In the treatment of ulcers, I have used galvanism, as in goitre and coccydinia, only after other and less laborious methods had failed, and hence my experience embraces only a small number of cases, too few indeed to serve as a basis for generalization. Two of the cases, however, were so unique in character, and were so remarkably influenced

by galvanism that it seems desirable to report them:

Case 1—occurred in a young man who in June, 1892, in falling off a horse, dislocated the right hip. The injury was followed by paralysis of the muscles of the leg, and sensation in the foot and lower third of the leg. In the early part of last January he frosted this foot, and the frost bite led to ulceration of the heel, and several small areas on the sole. On the 8th of April he called on me for relief from the "weakness of the leg." There was then complete paralysis of the extensors of the foot and toes; while the muscles of the calf of the leg could be contracted just enough to produce visible motion of the foot. All the muscles were atrophied. Sensation was impaired over the foot and anterior surface of the leg. All the muscles of the leg presented the reaction of degeneration. On the sole near the heel there was an indolent ulcer the size of a dime, with overhanging edges. The capillary vessels in the skin of the outer aspect of the foot were dilated, giving the part a livid appearance from the heel to the small toe.

Galvanism was applied to the foot and leg, and the muscles gradually improved in response to the interruptions of the current. But the first marked improvement occurred in the chilblain on the outer surface of the foot. In the course of six weeks the dilatation of the capillaries disappeared, leaving the skin normal in color. During these weeks and for a month longer, various stimulating powders, salves and caustics were applied to the ulcer, and the edges pared several times, without salutary effect. Then galvanism, ten to fifteen milliampères, with the kathode on the sore, was applied twice a week for three minutes and all medication stopped. The third application brought very distinct improvement, and a month later the ulcer was closed. The muscles did not show a corresponding gain during this time, so then the healing of the sore can not be attributed to general improvement in the nutrition of the leg.

Case 2—was presented in an iron worker, a strong, healthy man, in St. Joseph's Hospital. He had been admitted with a burn of the second degree, covering the sacrum, buttocks and back of the thighs down to the knees, the result of a fall upon hot cinders. Two months and a half after admission he came under my observation, with a granulating surface seven and one-half by ten and one-half inches on each thigh. The ulcers had been dressed with petrolatum. The surfaces were elevated, the granulations exuberant, not abnormally sensitive to pressure, and the edges were indurated. Oxid of zinc ointment was applied to both ulcers for a week. Then a dozen small skin grafts were placed upon the left, and to the right galvanism was applied daily for a week and then on alternate days. The ulcer was covered with a piece of wet muslin and the ordinary sponge electrode pressed gently upon it, at first over the edges, and after they manifested improvement, over the whole surface. The strength of current was regulated by the patient's sensations, the desire being to avoid pain, and was continued ten minutes. After four applications the granulations along the edges were visibly reduced, and the bluish-gray line between them and the cicatricial tissue around them was widened. Two weeks later the ulcer was reduced to five and one-half by eight and one-half inches in size, while that of the other leg had made no notable progress, although the edges had been touched several times with lunar caustic. During these two weeks both sores were dressed with oxid of zinc ointment, and in every respect kept as nearly as possible under the same conditions.

The next week brought decided changes. The grafts on the left leg were then growing in every direction, so that the granulating surface was divided into strips and small patches between them, and markedly diminished in area, while in the other the healing process seemed to have been arrested. The surface of this ulcer became deeper red in color, sank to the level of the surrounding parts, was uneven and granular, abnormally dry, extremely sensitive to touch, and painful. It was then an irritable ulcer, and had been made so by over-stimulation with electricity. A week before these changes were noted, the patient stated that the resident physician was applying the electricity stronger than formerly, or at least it was more painful—so much so, indeed, that he could hardly bear it; and during this week he objected to its use each time. It was now ordered to be discontinued until after the subsidence of the irritation, but a few days thereafter his wife persuaded him to leave the Hospital, and so ended our observations.

In their etiologic relations the ulcers in these two cases represent two extremes; the one having been caused by excessive cold and the other by heat—two extremes which meet, and in the human body produce like pathologic conditions. Both were indolent, exhibiting deficient vitality and the proverbial intractability to treatment. One became irritable under a weak galvanic current from three to six acid, zinc carbon cells, while the other healed promptly under a current of fifteen to twenty-five ma. Such differences seem to indicate that the dose of electricity, as of drugs, can not be measured by any stiff rule or precise instrument, when given as a stimulant or sedative, but should be regulated by the patient's sensations.

This is confirmed by a limited number of observations of the effects of galvanism in chronic ulcers of the leg, so common in advanced life, which will be reported later. The best results were obtained when the current strength was kept just short of giving pain.

It may be said that the case of frost bite bore a stronger current without pain and irritation, because sensation in the foot was impaired, but such criticism would be incorrect, for sensation had improved by the time galvanism was applied to the ulcer, so that in other parts of the foot, and leg the same current became painful after the electrodes were stationary for a few minutes. Then the impairment of susceptibility to the current was confined to the area of the ulcer, as indolence and irritation are in others which are uncomplicated by more central disturbance of the functions of implicated nerves, and consequently was a feature of its own character.

The favorable effect of galvanism in several cases of chronic eczematous ulcer of the skin seems to point to a large field of usefulness for this remedy in localized chronic eczema, especially in cases with infiltration and hardness of the tissues, for which Hebra's soap is now considered one of our best therapeutic agents.

DR. MARGARET A. CLEAVES of New York City, Instructor in Electro-Therapeutics, New York Post-Graduate Medical School and Hospital, read a paper on

METALLIC ELECTROLYSIS.

M. le Docteur Gautier, a distinguished French physician, and one of the Honorary Fellows of this Association, during the prst three years has called attention by his published experiments and clinical observations to the decomposition, at the positive pole, of medicated solutions in contact with diseased tissues, whereby there was obtained the local action of the drug thus newly born. To this method, Gautier has given the name of insterstitial electrolysis or medicamental electrolysis. Under the same nomenclature he now includes the use of soluble metallic electrodes. As interstitial or medicamental electrolysis deals with the use of binary compounds, such as iodid potassium, as well as soluble metallic electrodes, and as in this paper I shall only deal with the latter, I have preferred to use the term, "Metallic Electrolysis," a term for the invention of which I am indebted to Dr. W. J. Morton of New York.

By metallic electrolysis is meant a method which makes use of the chemic action of the positive pole both upon foreign substances—that is metals, such as copper, zinc and iron—and the tissues at the same time.

Prior to the observations of Gautier, M. Onimus[1] of Paris, and M. Prochovnick of Hamburg, among others worked with soluble metallic electrodes. Prochovnick[2] is recorded as having used 80 to 100 ma. with a copper sound, positive, in blennorrhagia of the uterine cervix. Three to six sittings were given. The gonococci disappeared, and the purulent discharge became serous.

Steavenson[3] very closely outlines the use of zinc in the conjoint work of Steavenson and Jones on "Medical Electricity," with the following paragraph: "If the electrode is made of zinc, chlorid of zinc is formed, which exerts its own specific action on the tissues, in addition to the oxidizing effect of the liberated oxygen."

But it is to Gautier we are indebted for systematizing this method into a scientific therapeutic measure. This he has done by a series of laboratory experiments and clinical observations, which have appeared from time to time in the *Revue Internationale D' Electrotherapie* during the past year, and which have also been embodied in his "Technique D' Electrotherapie." With two years' experience in the use of soluble metallic electrodes, Gautier[4] believes that the results will justify the confidence which he has in this form of electro-therapy.

A personal experience, extending over a period of twenty months, has demonstrated that in metallic electrolysis we

[1] Revue Internationale D' Electrotherapie, July, 1893.
[2] Gautier, Electro-Chemistry, Archives Gyn. Obst., and Pediatrics, August, 1891.
[3] Steavenson and Jones, Medical Electricity, page 367, Chapter XV.
[4] Revue, July, 1893.

possess a therapeutic measure of great activity, but I feel that we have only just begun to appreciate its value.

Ordinarily,in galvano-caustics,chemicals are manufactured by electrolysis out of the tissues themselves—at the positive pole, acids; at the negative, alkalies—which are in turn directed against diseased states. In metallic electrolysis, however, there are formed certain new salts which are utilized in the treatment of disease.

The following laboratory experiments of Gautier[5] form the basis for this method of treatment.

In making a study of the electrolytic reactions effected by contact of the positive pole with a pure stick of red copper, the subject was considered from two points of view: one was as to the production of a copper salt, and its nature; the other, its action on the living tissues.

To establish the one and elucidate the other, the following experiments were made in connection with M. Favier, a distinguished chemist attached to L' Ecole Polytechnique de Paris:

First, experiments were made to show that there was an actual decrease in weight of the copper electrodes. Two copper needles, "A" and "B," were carefully weighed by means of the most delicate optical balances. A weighed O gr. 34912; B weighed O gr. 34645. The needles were then thrust into the muscles of a rabbit's leg, attached to the positive pole of the battery, and a current of 5 ma. passed for ten minutes. They were then withdrawn, carefully wiped with filter paper, and weighed again. The first, "A," was found to weigh O gr. 34900; the second, "B," was found to weigh O gr. 34625, showing a loss for "A" of O gr. 00012, and for "B" of O. gr. 00020. This loss represented the exact amount of copper deposited in the muscles of the rabbit.

Experiments were next made to prove whether the salts thus deposited were toxic. As the serous fluids are composed half of chlorids of sodium and potassium, a 1 to 2 per cent. solution of artificial chlorid of sodium was made, and subjected to electrolysis, using copper as the positive electrode.

There was obtained as a result, an oxychlorid of copper, insoluble in water. This in turn, was placed in suspension in water, in the proportion of 1 to 2 per cent. and these latter solutions were used for intra-muscular injections in three rabbits.

In the first experiment, one cubic centimeter with 1 per cent. of the oxychlorid of copper was injected. No symptoms of intoxication were noticed in the three animals, and three days later, ten cubic centimeters of the same solution were injected. The animals remained normal. Subsequently, a third experiment was made with three cubic centimeters of the solution. Two months later there was no change whatever in the animals.

Next, in order to find out the nature of the copper salt produced in contact with the tissues, a current of 10 ma. was passed into a solution of sodium chlorid with copper for the anode. The copper used was from galvanic deposits, and its purity assured. After the circuit was closed, a green deposit was seen forming around the positive pole. This precipitate, washed and dried, became black at 110 degrees C., and analysis showed that it corresponded to the formula, Cu Cl 2Cu O. This was the same salt formed when muscular tissues or mucous membrane were submitted to the action of a copper anode.

Next, experiments were made to show the action of this copper salt upon the uterus of a rabbit. The experiments were made upon a rabbit six days after delivery.

Forty intra-uterine applications were made. The sittings were at intervals of three days, and were ten minutes in length, with five minutes for reversal of the poles. The current strength was 20 ma.

After the forty applications, the uterus and ovaries were removed without killing the animal. No lesion whatever was discovered. There was no congestion; the mucous membrane lining the cavity was soft and white, and the orifices normally dilated. After making these microscopic observations, a similar application to the preceding, was made upon the removed uterus, and after half an hour's interval it was demonstrated that there was, 1, an appreciable deposit of copper salt on the entire surface of the mucous membrane; 2, complete penetration of these salts into the tissues, the green color being apparent both internally and externally; 3, there was found one salt, oxychlorid of copper, which was insoluble, and another, an organo-metallic salt which was soluble.

Experiments were then made to establish the comparative microbicidal action of the oxychlorid of copper and the positive pole of the constant current with an unoxidizable electrode.

The bacillus *pyogeneous* was subjected to the action of the positive pole. It was found that while a C.S. of from 130 to 180 ma. was sufficient to attenuate after forty-eight hours the bacillus of anthrax, a current of 200 ma. applied for five minutes gave no appreciable results with the pus bacillus. On the other hand, the oxychlorid of copper at the positive pole influenced strongly after seven minutes the pus bacillus in its pigment-secreting function, and feebly in its multiplication. After a quarter of an hour with 40 ma. the function was totally suppressed, and life was almost extinct.

These experiments show conclusively that the copper salt is much more effective in its action upon the bacilli than the galvano-caustic method.

Additional observations were made to show the difference upon the uterine mucous membrane of the action of the positive pole with a platinum electrode and with one of copper.

In the first instance, with the platinum electrode, and a C.S. of 50 ma. it was found that in the uterus of a rabbit, the mucous membrane became congested, and that the positive pole was surrounded by dilated vessels, which failed to contribute to the work of reparation, and gave place to a retractile cicatrix. This polar property of the current is associated with a contemporaneous intra-polar action, concurring secondarily to the same end. The atresia to which the tissues are subjected by the chemic action serves to arrest the hemorrhage. On repeating the same experiment, however, with a copper electrode, and the same current strength, and duration of application, there could be found on a level with the soluble copper electrode no traces of destruction, or of inflammation in the vicinity. The mucous membrane was soft, infiltrated in its entire surface and profound depths with this new apple-green colored salt, the oxychlorid of copper.

In metallic electrolysis, the properties of the current which are constantly active are the electrolytic and the cataphoric.

So far as conductivity is concerned, the human body may be regarded as a 2 per cent. solution of sodium chlorid. By electrolysis of the tissues in contact with the positive pole, there are set free oxygen, acids and chlorin. These, in turn, attack the soluble metallic electrode, whether sound or needle, and we have formed as a result, an oxychlorid of copper, zinc or iron, as the case may be.

But no less important is the cataphoric property of the current, which after the formation of the salt electrolytically, causes it to penetrate the tissues rapidly in a zone around the sound or needle to a greater or less extent, according to the C.S. and duration of application. This is exceedingly easy of demonstration with either a piece of meat or a hard boiled egg into whose substance a copper needle has been thrust. This needle is attached to the positive pole, while a steel or platinum needle attached to the negative pole completes the circuit. A current of 40 ma. for five minutes will cause a diffusion of the copper salt to a distance of one-third of an inch in every direction from the needle.

(To be Continued.)

[5] Technique D' Electrotherapie, Gautier et Larat, page 169.

CORRESPONDENCE.

As to "Nostrum" Advertisements in The Journal.[1]

To the Editor:—About a month ago, I addressed you a letter replying to one of your editorial articles. As that letter has not yet been printed and as I have not heard further in reply to my query concerning it, than that search would be made, I presume it has been lost, and I therefore beg to again communicate its substance, in the hope that it will receive an early insertion, together with this preface explanatory of its apparent tardiness. I wrote at first and again write because I desire to see the JOURNAL a perfect representative of the best in American medicine.

In your editorial you animadverted on the fact that some of your Eastern cotemporaries "lectured" the JOURNAL on the sale of its advertising columns to nostrums, and you replied that, 1, there was an attempt to make a difference

[1] Published by order of the Trustees.

between a "physicians' journal" and a "publishers' journal," which you thought unfair; and 2, that no one had ventured to explicitly name the objectionable advertisements.

At this lapse of time I have had to repeat your argument as above, in order to make my answer intelligible.

While I have no concern in the question between you and your cotemporaries as to which is "pot" and which "kettle," and whether or not the etiquette that should prevail among culinary utensils has been violated by cries of "Blacky" from a soot-covered vessel, I have very much concern with the main issue, and on it I beg to respectfully differ with you in both your contentions.

1. Is a "physicians' journal" bound by more stringent rules than a "publishers' journal?"

Let me answer this by an apt illustration: At the time I brought to the attention of the Philadelphia County Medical Society the question of nostrum advertising in medical journals, I had some correspondence on the subject with a friend, an honorable gentleman, a member of a well-known publishing house. His answer to my request that his house should decline nostrum advertising was about as follows: "So long as the journal of which you are part owner sets the example of receiving such advertisements, you have no grounds on which to criticise us. When THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION declines to advertise secret preparations, we will likewise take the matter into consideration."

So you see, there is a very important difference between a physicians' journal" and a "publishers' journal." I am "part owner," to quote my friend, and every other member os the AMERICAN MEDICAL ASSOCIATION is likewise "part owner" of a journal which persists in a course of conduct that we believe to be wrong and that we seek to prevent in others. Our reform must "begin at home."

But even if this argument were not so forcible, there is one that you have persistently ignored. The Code of Ethics, which is not yet repealed, and which will not, I trust, be repealed, prohibits not only the use of nostrums by physicians, but *any action that tends to increase their use.* Surely, advertising them "tends to increase their use!" Were it otherwise, the "enterprising proprietors" would not waste their money on advertisements.

Furthermore, even if you ignore this special provision of the Code, there is the resolution adopted at the instance of the Medical Society of the State of Pennsylvania at the Detroit meeting of the AMERICAN MEDICAL ASSOCIATION, which expressly forbids the Trustees of the JOURNAL from advertising secret preparations.

The ingenious evasion by which the Trustees have sought to nullify this resolution, and which they must be aware is only laughed at by intelligent men, does more credit to their acuteness than to their straightforwardness. Nor does the fact that their action was passed over in silence at the Milwaukee meeting, render it any the less blameworthy. The fact apparently is that the Trustees have deliberately decided to disobey not only the spirit but the letter of the Code and of the Detroit resolution. They do not even "keep the word of promise to the ear, to break it to the hope," but break it to ear and hope alike. On the surface, their action seems to highly deserve a vote of censure; I will be very glad to learn that there is some justification for it, not apparent. If it be said that without the money received for this prostitution the JOURNAL could not exist, it would be very difficult to answer such a plea in respectful terms. I have no doubt that you can elicit a similar plea from nearly every strumpet. We can pity the strumpet, but surely the JOURNAL does not wish to be an object of pity!

2. Has no one explicitly pointed out the objectionable advertisements?

A number of them were mentioned in my paper before the Philadelphia County Medical Society, "Shall Physicians become Sales-Agents for Patent Medicines?" which was reprinted in the JOURNAL, and editorially commented upon. The *Pittsburg Medical Review* has frequently named them. In my letter mislaid by you I ventured to give you another list. In this communication I will content myself with naming only one—the one which is very properly headed "An Affront to the Medical Profession." But you need no other rule than that of the Code—which makes *secrecy* the sign and test of a nostrum. Yours very truly,

SOLOMON SOLIS-COHEN.

The Prevention of Pauperism.

OTTAWA, OHIO, January 8, 1894.

To the Editor:—Dr. Bryant's paper is to the point and timely, but he does not prescribe the right remedy, in my opinion. And I am sorry to see so many eminent and erudite men, in the discussion of his paper, laboring under the same delusion—*educate them to labor.*

My experience and observation corroborates Dr. Lloyd. The early settlers of this country were not paupers, but the introduction of a foreign element diseased with crime, immorality, etc., has given issue to not only paupers, but criminals. The inter-marriage of criminals and paupers not only begat criminals and paupers, but it has a contagious effect upon others not strongly endowed with energy and self-protection.

Not to give a lengthy dissertation of my convictions, I would castrate every male and female who proved non-self-supporting, caused by their own vicious habits, be such a character or habit acquired or hereditary; after a final judgment rendered by an expert jury of twelve free-born American citizens. Further, I would recommend the same punishment, if it could be so classified, for crimes, as homicide and grand larceny. I am morally sure, if such were the laws, three to five generations hence, jails and penitentiaries as well as almshouses would be of the past, and remembered only as monuments of the world's ignorance in the selection of the fittest, as we now remember the Spanish Inquisitons, or of the burning of witches at Salem.

C. E. BEARDSLEY, M.D.

Dr. Howle Replies to Dr. Lewis.

"How to manage criminals"—Howle. "How to encourage criminals."—Lewis.

Doctors are better judges of disease than are laymen but not necessarily better versed in criminal law. I did not "define crime" because it was unnecessary. Your definition of criminal is incorrect by having "knowingly" inserted. I had no intention to defame our law-makers. I approve of "laws made by majorities." A "riot" may result in great good but to say that a "riot is lawful" is a contradiction of terms. I do not believe that the "absence of all human laws" "would destroy all force," nor do I believe that "law causes riot and justifies stealing," but I do believe that the object of the law is to "prohibit riot and other crimes." "Being imperfect in organization and training" would not be a satisfactory excuse for crime. "Malformation of the brain" is difficult to diagnose in a strong *healthy* criminal. The "inability to adjust one's self in complete harmony with his surroundings" is a calamity that befalls most of the human race, but is not necessarily criminal. The word "fad" may not be euphonious nor a "philological" success, but it is very expressive and easily understood. "Emotional outburst of fury" is oftener met with in the criminal than in the judge.

"Judicial revenge" is another contradiction of terms. Jokes aside, Doctor, the JOURNAL is not the place to discuss politics. If you really believe that "crime is the result of disease," say so, but don't poke fun at me.

Respectfully, W. P. HOWLE, M.D.

NECROLOGY.

Thos. B. Wheeler, M.D., Chicago, January 11.

Dr. Patton of Silver Cliff, Col., January 2.

W. T. Bowker, M.D., of Kansas City, January 9.

Joseph Lee, M.D., Roseville, Ill., December 23.

R. S. Harvey, M.D., Spokane Falls, Wash., January 9.

Melville Bryant, M.D., of Brooklyn, N. Y., December 24.

J. H. Blue, M.D., of Montgomery, Ala., January 8, in New York.

David Wilson, M.D., Robinson, Ill., January 11. He was over 80 years of age and left an estate of over $130,000.

George Adam, M.D., who died at Canaan, Conn., last week, aged 81 years, was born and lived under the same roof all his life.

Alexander Stewart, M.D., died at Shippensburg, Pa., December 6, from pneumonia, aged 84 years. He was for twenty-one years President of the First National Bank of that place.

O. A. Willard, M.D., Lowell, Mass., January 7. He was 28 years of age and a graduate of Bellevue Hospital Medical College, N. Y. He was a member of the Middlesex Medical Society.

C. E. Tupper, M.D., formerly Superintendent of the Toledo Ohio Asylum for the Insane died January 10. He was at one time director of the Dayton Insane Asylum and for many years a Pension Examiner in Putnam County.

Lucius A. Smith, M.D., Brooklyn, N. Y., January 5. He was born in Connecticut, July 11, 1831. He was graduated at the Medical Department of Yale College in 1852. He was subsequently Assistant Physician at the State Asylum for the Insane at Hartford. Of late years his attention had been given to marine architecture.

George Schloetzer, M.D., died on December 5, at Carlsruhe Germany. He was a graduate of the University of Bonn, and for many years a resident of Chicago. When the Eightieth Regiment of Illinois Volunteers (Col. Hecker's) was organized he was appointed Surgeon, and served in that capacity during the war. In 1870 he succeeded Dr. Wagner as a member of the Chicago Board of Health.

Jas. R. Freeman, M.D., Exalted Ruler of the Minneapolis Lodge of Elks, and one of the best known and most popular residents of that city, died of pneumonia January 4. Dr. Freeman was born in Biddeford, Me., and was 38 years of age at the time of his death. He was graduated from Dartmouth College with honors, and afterwards studied medicine, removing to Minneapolis about eleven years ago, where he has since resided.

Wm. L. Leonard, M.D., Winterset, Iowa, December 19. He was a graduate of Ohio Medical College, 1852, and later of Jefferson Medical College. He was Assistant Surgeon Thirty-ninth Iowa Volunteers 1862, and in 1863 Surgeon of Seventh Illinois Volunteer Infantry, and for a time served on General Dodge's staff. He was a member of the Madison County (Iowa) Medical Association and of the Iowa State Medical Society. He was an active Mason and a Presbyterian.

Jas. F. Gayley, M.D., died at Philadelphia January 9, in the seventy-sixth year of his age. He graduated at the University of Pennsylvania in 1848, and continued in the practice of his profession until a short period before his death, enjoying during that time the warmest confidence of a large *clientele* of families in all ranks of life. He was the author of a history of the Medical Department of the Jefferson College, and also contributed to many medical journals during his career. He was a leading member of the Presbyterian Church, a kind and sympathetic physician, and his loss will be mourned by all who knew him, not alone for his skill, but for his charity, his attention to the suffering, and his deep religious fervor,

David Raymond Fox, M.D., aged seventy-one years and two months, died at his residence at Jesuits Bend, La., Dec. 29, 1893.

Dr. Fox was born Oct. 14, 1822, at Woodville, Miss., and was the third son of the Rev. Jas. A. Fox and Sarah Otis. He received his education at home, under private tutors, and in 1842 entered the medical department of the University of Louisiana, graduating March, 1845. He at once began the practice of his profession, first locating in Warren County, Miss. During the summer of 1847, he spent several months at Dead-man's Bend, Concordia Parish, La., where he treated the cholera of that year.

The following season he was engaged as Surgeon on board the S. S. *Pacific* plying between New Orleans and Central America, where he acquired much experience in the treatment of tropical fevers. In 1852, he located in the parish of Plaquemines, La., where he has since remained.

He has always been an active member of his profession, being one of the founders of the Louisiana State Medical Society, in which he has taken an active interest, serving several times as Vice-President, and once as President in 1886, at the annual meeting held at Alexandria, La. In 1887, he served as Vice-President of the Ninth International Medical Congress held at Washington, D. C. He has always been an interested member of the AMERICAN MEDICAL ASSOCIATION, and a liberal contributor to medical literature.

A loving father, a devoted husband, a beloved and skilful physician, he leaves a bereaved family and a host of friends to mourn his loss. T. B. F., in *New Orleans Picayune*, December 30.

Charles Gilman Smith, M.D. of Chicago, died January 10. Dr. Smith was born at Exeter, N. H., Jan. 4, 1828. At 16 he passed the examination at Harvard College, and was accepted as a sophomore, graduating in 1847 in the literary department. Soon after he began the study of medicine in his native town, taking his first course of lectures at the Harvard Medical School in 1848–49. Afterwards he went to Philadelphia and continued his studies at the University of Pennsylvania, from which he graduated in 1851. He then went to Boston, where for two years he was Attending Physician at the Almshouse Hospital. In February, 1853, he came to Chicago, and began what soon developed into a highly prosperous and successful practice. During the war he was one of the six physicians placed in charge of the prisoners at Camp Douglas in this city. In 1868 Dr. Smith went abroad to study in the hospitals of France, Germany, and England. On his return he lectured in the Woman's Medical College for some time. He was next made Consulting Physician at the Women's and Children's Hospital and at the Presbyterian Hospital. He was also a Trustee for several years for the Peck Home for Incurables, in which he took an active interest. Dr. Smith, in addition to his private practice, served a number of the more important insurance companies as their examining physician, a line in which he had an extensive experience.

Dr. Smith had a wide acquaintance among men of letters and enjoyed the confidence of many noted authors, being a personal friend of Oliver Wendell Holmes. He was President of the Harvard club and of the Chicago Literary club. He was an excellent presiding officer, and one of the best toastmasters in the city. Dr. Smith was married in 1873 to Harriet G., youngest daughter of Erastus F. Gaylord of Cleveland, O., who, with a sister, Miss Elizabeth Smith of Exeter, N. H., survives him.

He was Chairman of the Committee of Arrangements for the ASSOCIATION meeting held in Chicago in 1887.

Ralph Lesslie, M.D., of Toronto, December 20, on the Island of Dominica. He was a graduate of the University of Toronto, and had a romantic history; served as Surgeon-Major with the Turkish army during the Servian war, and was present at the siege and capture of Alexinatz; accompanied the victorious army on its march from Alexinatz to the Danube across the Balkan Mountains.

During the Russo-Turkish war served with the Red-Cross ambulance attached to Dervish Pasha's army covering Batoum, where he saw some hard fighting, and with his colleague, Surgeon Hope, accompanied the attacking column on one occasion, attending the wounded under heavy rifle fire. For the services they rendered in this battle they were publicly thanked by Field Marshal Dervish Pasha and recommended for the Order of the Medjidie, which they afterward received.

After two months' services in the Georgian Mountains, and witnessing various unimportant skirmishes, Dr. Lesslie was ordered to Kars and rode from Trebizond to Erzeroum over the road by which the 10,000 Greeks retreated. At Erzeroum he received orders to return to Constantinople, whence he was again ordered to the front to join the army of the Shipka Pass, where he again saw hard fighting and rendered good service. Thence he was sent to join the army for the relief of Plevna and was present at the battles of the Kamarli Pass and Taskeshan, where Baker Pasha, with a small force, kept Gourko's army at bay until the retreat of the Turkish army was secured.

From Taskeshan he accompanied Suliman's army on its memorable retreat, in the depth of winter, across the Rhodope Balkans to the Ægean Sea, and finding the medical service of the army disorganized, attached himself to the rear guard and attended the wounded under fire during three of the actions in which the rear guard was engaged.

At the close of the war Dr. Lesslie was appointed medical officer to the Turkish Compassionate Fund (organized by the Baroness Burdett-Coutts), and for three months was in medical charge of 7,000 refugees in the mosques of St. Sophia and Sultan Achmet. He afterward served with the English army during the Zulu war, but was not present at any of the engagements. He accompanied Clarke's column on its march to Ulandi and return to the coast, and was attached to Major Martyr's party of dragoons during the first portion of their chase after Cetewayo.

For the next two years he held resident hospital appointments in London and Trinidad, and after a visit to India, China and Australia, went to the Congo with Major-Gen. Sir F. Goldschmid on a special mission for the King of the Belgians. On his return to Europe he was thanked by the King for his services and was sent out to Africa again with Sir F. de Winton as principal medical officer of the Congo Free State.

After two years' of traveling and hard work in the heart of cannibal Africa, varied by occasional fighting with hostile natives on the Upper Congo and its tributary, the Kasai, Dr. Lesslie was again thanked by the King for his services and personally decorated by His Majesty with the Order of Leopold. A year later he received the Congo Star, an order instituted by the King to reward special service in Africa.

After five months' study in Berlin, and seven months' travel in Italy and Austria in medical charge of Sir R. Burton, the great traveler and orientalist, he went for a tour around the world, visiting India, Siam, China and Japan en route. He afterward visited Chili, in South America, and made a voyage up the Amazon.

PUBLIC HEALTH.

Measles.—The epidemic of measles is prevailing in New York.

Smallpox at Reading, Pa.—It is announced that for the first time in eleven months no smallpox signs are to be seen, although there are still a few cases in the hospital.

Diphtheria.—Recently the remains of a patient that had died of diphtheria was taken into a church at Buffalo. The undertaker opened the coffin so as to give an opportunity to see it. Since, seven have died of the disease as the result of this exposure.

International Sanitary Congress.—The President has appointed Edward O. Shakespeare of Philadelphia, Stephen Smith of New York, and Preston H. Bailhache, M. H. S., as delegates to represent the United States at the International Sanitary Congress, which meets in Paris January 24.

Department of Public Health.—The Ramsay County (St. Paul) Medical Society at their monthly meeting held January 7 recommended the establishment of a Department of Public Health. They urge the bringing of that department on a footing with other Departments, with a Secretary at its head who shall be a member of the President's Cabinet.

Lecture by Surgeon General Sternberg.—A course of lectures to be given under the auspices of the Sanitary League of Washington, D. C., was commenced January 8 by Dr. Sternberg, the Surgeon General of the Army. The subject of the discourse was disease germs, the object of the lecturer being to show to his audience how easy it is to prevent the spread of certain dangerous diseases when they fasten on a household or neighborhood. Photographs of pathogenic micrococci, bacilli and spirilli were thrown on the screen to illustrate his remarks. Moist heat in the form of steam or hot water was represented as the best germ killer or disinfectant. Boiling was a sure germicide; at 212 degrees F. all spores perish. A heat of 140 degrees F., continued for ten minutes suffices to give safety, but it is better to increase the heat and prolong its duration. Milk, water or soup that has recently been boiled is free from infection but if allowed to stand for some time in the vicinity of danger, germs may alight upon it and breed with amazing rapidity. The germs of cholera and fevers multiply wonderfully in milk and soups. Articles of food are often infected through the instrumentality of flies. These alight on contaminated surfaces and their feet become soiled with germs which are afterwards transferred to substances prepared for table use. Sunlight is deadly to germs. Those of cholera are unable to resist an exposure of three or four hours to the rays of the sun. Drying, also, is efficient against cholera; but desiccation will not destroy the germs of consumption, diphtheria or typhoid fever, which are capable of living for months in the dried state. Lime wash or common whitewash is valuable as a disinfectant. It destroys the germs in the excretions of cholera patients. A solution of carbolic acid, five parts in a hundred parts of water, is also a good disinfectant for excreta. The products of coal tar are new and valuable agents for the same purpose. Little boxes of chlorid of lime, (bleaching powder), hermetically sealed and quickly used after being opened are suitable as a disinfectant for household use. Six ounces of the powder in a gallon of water makes an excellent disinfectant solution, but it must be used shortly after it is prepared as exposure to the air destroys its efficiency. Burning is the best method of disposing of expectorated matters. The germs of cholera and typhoid fever in the excreta and of influenza, diphtheria, pneumonia and consumption in the expectorations can be destroyed easily; but as regards the eruptive fevers, the germs of which are not fully identified, the only sure method of dealing with infected matters such as soiled clothing and exfoliations from the surface of the body is to burn them.

Minnesota State Board of Health.—The new State Board of Health met at the Governor's office January 9 to organize under the new law. The members were all present, as follows: Doctors Perry H. Millard, St. Paul; Charles N. Hewitt, Red Wing; Franklin Staples, Winona; C. F. McComb,

Duluth; K. Hoegh, Minneapolis; W. J. Mayo, Rochester; W. H. Leonard, Minneapolis; Edward Boeckman, St. Paul; W. L. Beebe, St. Cloud.

The report of the Secretary, Dr. Charles N. Hewitt, as being the report of a board now passing out of existence, was made very comprehensive, and covered practically the history of the Health Service during its twenty-two years of existence. The methods of coöperation now pursued by the State and local boards of health are the result of ten years of trial of different methods and of legislation gradually adopted. In 1885 the Service was given charge of infectious diseases of domestic animals, the control of offensive trades and the oversight of water supplies. In 1887 monthly collection of statistics of births and deaths was made obligatory, and the secretary of the State Board became registrar of vital statistics. The Service consists numerically of the State Board and 1,638 local boards. The entire population of the State, except in a few sparsely settled districts, is now provided with local sanitary service. There are in the Service 232 physicians serving as health officers. In many cases chairmen or clerks of township boards represent the service, and 70 per cent. of the reports of infectious diseases come from them.

Dr. Hewitt says that the time has come for the recognition of public health as a subject of instruction in educational institutions, and that it should be provided for at the normal schools by lectures and laboratory work. Dr. Hewitt has devoted a good deal of time and study to the culture of virus for vaccination. He uses the calf lymph produced by the London Board of Health. Since he introduced it it has been used in over 7,000 cases in the State.

After the reading of Dr. Hewitt's report came the election of a president and secretary. Dr. Staples as President and Dr. Hewitt as Secretary were reëlected for the present year.

Meeting of State Board of Health, Lansing, Jan. 12, 1894.—The State Board of Health held its regular meeting at its office in the Capitol, Jan. 12, 1894. The meeting was called to order by President Frank Wells of Lansing; Dr. Gray of Pontiac, Prof. Fall of Albion and Dr. Baker were present. The regular business of auditing of bills and accounts was transacted.

Prof. Delos Fall of Albion, Committee on Water Supply and Purification of Sewage-contaminated Water, made a preliminary report. Prof. Fall has undertaken an analysis of the uncontaminated spring waters throughout Michigan in order to ascertain the normal amount of chlorin. Ten parts per million has been considered the maximum amount of chlorin which should be found in good spring water, but he thinks that the standard will have to be raised somewhat for Michigan, as most of the samples that he has examined contain over ten parts of chlorin per million of water. Prof. Fall proposes to continue this analysis of spring waters, and would be glad to get samples of such spring water as is not contaminated by leachings from barns, stables, residences, etc. He wants a half-pint of such water in a perfectly clean bottle, with a new cork, with reliable statement of source and surrounding conditions. His address is, Prof. Delos Fall, Albion, Mich. The State Board voted to aid Prof. Fall in his work, and his report will be looked for with interest, as it will supply a standard by which to judge of the extent of sewage contamination of waters hereafter examined chemically.

The Secretary presented an invitation from the leading citizens of Menominee for the State Board to hold one of its Sanitary Conventions in that city. The Board will accept the invitation, and appointed Prof. Fall a committee to make arrangements for such a convention.

The subject of the further continuance of the Michigan inspection of immigrants was discussed. Secretary Baker thought that the Michigan inspection of immigrants which has been in progress for some time has done much to prevent the introduction and spread of dangerous communicable diseases. He also thought that the stand the Michigan State Board had taken had been the means of raising the standard of quarantine in this country, tending as it has toward the disinfection of the baggage of all immigrants coming into this country. It is not improbable that the inspection at the border has been the means of keeping Michigan free from smallpox, and it is probable that it has lessened the introduction of other diseases. The Michigan inspection rules for disinfection were carried out during the summer at Levis, near Quebec, and are now being carried out at Halifax, under the direction of Dr. Wickwire, Port Health Officer at Halifax. Smallpox is now quite prevalent in several States, but it is hoped that Michigan will not be visited by this disease. Owing to the depression in mining, lumbering and other business, immigration will probably be much lessened. The recent judicial decision was discussed, and a resolution adopted as follows:

"*Resolved*, That in view of the adverse decision of the Hon. Joseph H. Steere of the Eleventh Judicial Circuit, declaring the penalty portion of the Michigan Quarantine Law unconstitutional, the immigrant inspection at the Michigan border is hereby suspended from and after Jan. 13, 1894."

It is understood that legal measures have been taken to obtain a decision on the subject by the Supreme Court.

The Secretary presented a letter from Supt. Clarke of the School for the Deaf, at Flint, in which Mr. Clarke requested the State Board to send an expert to aid the local physicians in stamping out the outbreak of scarlet fever in that institution. The Board voted to send an expert.

Secretary Baker had received an invitation to read a paper before the Wayne County Medical Society on the "Prevention of Pulmonary Tuberculosis or Consumption as a Disease Dangerous to the Public Health." In view of the recent action on this subject by the State Board, and the proposed coöperation of the Detroit Board of Health in the same direction, the State Board requested the Secretary to accept the invitation.

The subject of a Chair of Sanitary Science at the State Normal School, and at the State Agricultural College, was presented by Dr. Baker. He mentioned that the State Board of Agriculture had already been memorialized by the President and other members of this Board and himself, to establish a chair of hygiene; but he thought the Board as a whole should continue to exert influence. He argued that the State law compelled the common schools of Michigan to devote time to the teaching of hygiene, but that there was not much provision for the proper education of those teachers who are compelled to teach hygiene. The State Normal School is devoted to the training and education of teachers, and the State Agricultural College has its vacation in the winter in order that its students may teach, yet neither of these institutions has a Chair of Sanitary Science. The State Board of Health had already put forth its efforts for such a chair at the Michigan University, and a Laboratory of Hygiene had been established and is now doing great good. Dr. Baker thought that the youngest pupil in our schools should have an idea of how the most dangerous communicable diseases are spread, and that it would be just as practicable to teach them the restrictive measures, as it is to teach them all about the bones, muscles and nerves, as is now attempted. Each pupil should also know just what disease causes most deaths in Michigan and just how it may be prevented or avoided. But how are these pupils to be taught such subjects, when there is practically no adequate provision for the education of the teachers? Prof. Fall said he was very glad to say that Albion College was teaching sanitary science. A large class of the best students in the College have this course of training.

On motion of Prof. Fall, the Board voted that a committee of three be appointed by the President to memorialize the State Board of Education to establish a chair of sanitary science at the State Normal School. Prof. Fall of Albion, Dr. Baker and Dr. Milner of Grand Rapids were appointed to act as this committee.

On motion of Dr. Baker, it was voted that Dr. Gray of Pontiac act as chairman of a committee to memorialize the State Board of Agriculture to establish a chair of sanitary science at the State Agricultural College. It was also voted that President Wells and Prof. Vaughan of the University be the other members of this committee.

Considerable other business was transacted, and the Board adjourned at a very late hour.

MISCELLANY.

Philadelphia Notes.

An exceptionally mild winter thus far has prevailed in this section of the country, which, though doubtless a great boon to the poor, is regarded as of questionable benefit to the entire community; since the general impression is that the prevailing humidity is in some way etiologically related to the present epidemic of influenza, or epidemic catarrhal fever. A twelvemonth ago, we had the coldest January on record for over twenty years in this locality; but this year, no evidence of cold weather is yet to be seen in the streets, and fears are expressed of an ice famine next summer. The first week of the new year showed an increase in the city mortality, directly due to grip and its results. Thus, there were 63 deaths specifically charged to this disease, besides 109 of pneumonia, and 39 of heart disorders, which were also ascribed to the grip. While the total number of deaths from all causes during this week was 613, an increase of 3 since the preceding week, and of 63 as compared with the same week of last year, there was a decrease of 40 from the rate of the same week of the year 1891, when the present epidemic began. Of the total number above stated, 188 were children under five years of age. There is also a moderate increase in the mortality from diphtheria, scarlatina and typhoid fever, which, however, are not prevailing in epidemic form. There were no deaths during this period from smallpox or typhus, and no cases of these forms of zymotic disease are now believed to be present in the city. It may be of interest to note that, during the first week after the holidays, 22 persons died of old age in Philadelphia. No epidemic of senility, however, is anticipated.

Several cases of acute, confusional insanity accompanying or due to influenza have been recently reported. One case was a medical student at Jefferson College who became violently insane during an attack of influenza and had to be removed to Jefferson Hospital. Some cases have delusions with homicidal tendencies. Thus, a professor in the High School, while suffering from what was thought to be a mild attack of grip, escaped from his room at night, and climbing by means of a veranda into a neighbor's house, he there created much excitement by flourishing a big knife and threatening to kill the neighbor, who he thought had abducted his wife. He finally came into the hands of the police, who required much explanation before they would believe that no crime had been committed, and the escapade nearly cost the patient his life. In another case the result was even more tragical, but the agency of the grip in its causation is less manifest. Professor Shortlidge until recently was the Principal of a well-known academy for boys at Media, near this city. He had been depressed by financial troubles and by an attack of grip, and had recently given evidences of some mental alienation with suicidal tendency. On New Year's day, he walked out of the house and his wife (to whom he had been recently married, having been a widower for years), went after him to bring him back. Pistol shots were heard, and the first to arrive at the grove where the occurrence took place, found Mrs. Shortlidge on the ground, dying from several wounds, and her husband leaning over her with the recently discharged pistol in his hand. He was taken to the jail, constantly asking for his wife, and only occasionally realizing for a brief moment the awful nature of the deed that he had committed. A Commission in Lunacy, consisting of Drs. Chas. K. Mills and Dr. Chas. S. Trumbull, is now investigating his mental condition, but there is no one entertains a doubt as to the result of their examination. There is a question, however, as to whether this could be properly charged to the account of the grip or not, since the patient had made a railway journey to this city a few days before, in order to purchase the pistol, which he had kept secreted until he used it with such fatal effect. This does not look like the delirium of an acute disease, but more like homicidal insanity, in producing which the depressing effects of grip may have been an incidental factor.

Last fall, a ship came to this port from India, manned entirely by Lascars, a number of whom were sick with a disease which Port Physician Brenning pronounced beriberi. Several deaths occurred from the disease during the voyage. About a dozen of the sick were taken to the hospital and isolated and the ship quarantined. No further deaths occurred and no new cases developed. It is believed that this is the first time that this disease has been recoenized in this city.

The annual meeting of the College of Physicians for the election of officers was held January 3. Dr. S. Weir Mitchell was reëlected President. Dr. I. Minis Hays has resigned from the Library Committee. Dr. Frederick P. Henry is Honorary Librarian.

The County Medical Society will hold its election next week, but as there is no other nomination for President, Dr. De Forrest Willard will be unanimously reëlected to this office. Dr. Willard has just finished a very valuable course of lectures on the "Mütter Foundation on the Surgical Pathology and Surgery of the Spinal Cord," at the College of Physicians.

Prof. J. M. Da Costa, who has just recovered from an attack of grip, will deliver one or two special lectures on some topic not yet definitely determined upon, before the students of the medical department of the University of Pennsylvania in response to a very flattering invitation from the Trustees and Faculty. He continues his weekly clinical lectures at the Pennsylvania Hospital on Saturdays as usual for the winter months, during his term of service as Attending Physician.

The "Standing Committee on Cholera" of the College of Physicians, sent out 800 letters to physicians in and near Philadelphia requesting their assistance in the work of sanitation of the city during last summer, and to those who consented to act with the Committee blanks were sent, for reporting of nuisances in the form of dirty houses, yards or streets, bad paving, neglect of duty by the cleaning and paving contractors and so on. During the summer about sixty complaints of the condition of various streets and houses were received, mostly as to accumulation of filth or garbage or foulness and overfilling of privy vaults. These were referred by the Committee to the Director of Public Safety and to the Board of Health for action. Some of the members of the Committee investigated for themselves besides, and without exception the complaint so examined proved to be well founded. The authorities seem to have received the complaints addressed to them in the proper spirit and to have done what was possible to remove the causes.

A large number of complaints of the manner in which streets were torn up for miles and left so torn up during many weeks were made, and much sickness of the nature of low continued fevers was attributed by the Committee's correspondents to this cause, but in spite of their efforts to get this state of things done away with, a similar condition exists even at present, and no attempt has been made by the authorities to prevent it.

Hospital Notes.

The Woman's Christian Association Hospital at Omaha, was slightly damaged by fire January 4.

The Trustees of the Santa Fe Hospital have decided to erect a building in Topeka this year, and work will be commenced in the early spring. The building and grounds will cost $100,000, which sum is on hand.

German Hospital in Philadelphia.—This institution according to its annual report is now supplied with water from two deep wells in the hospital enclosure. 2,485 patients were admitted during the year.

The Annual Report of the State Hospital for the Insane at Warren, Pa., shows 890 patients in the institution, representing 36 counties of the State; 276 were admitted during the year, and 206 discharged; 63 were restored and 57 died. The cost of maintaining these was $165,000.

Amphitheater Condemned.—The Building Inspector has condemned the clinical amphitheater of the City Hospital at Indianapolis. The building was constructed about thirty years ago. The same authority also discovered that the Hospital was without fire escapes, as required by law for all buildings over three stories in height.

St. Mark's Free Hospital and Dispensary of Chicago for rectal diseases. A charter has been secured for the above named institution by Dr. Joseph B. Bacon, Dr. Isabel Fish Taylor, and E. D. Stevens, and arrangements are being made to give Chicago a free hospital patterned after the well-known St. Mark's of London.

The Trenton Gazette in speaking of a new hospital to be constructed at Trenton says:

"One of the chief requisites is absolute freedom from dust, a quantity imperceptible to the human eye, entering the incision, often producing fatal results. To secure this important condition a room is being built with enameled brick, making it dust proof."

The conclusion is sound, if the premise is startling.

Hospital for Cripple Creek.—Mother Superior Baptiste of the Sisters of Mercy has purchased a large ten-room house between Third and Fourth Streets on Bennett Avenue, Cripple Creek, Colo., and is now busily engaged, with the aid of three sisters, in getting it ready for hospital use, and on Saturday next hopes to be able to receive patients. The camp is sorely in need of a place where the sick and injured can be cared for, and the miners generally consider themselves fortunate that so competent a nurse as Mother Superior Baptiste is to be at the head of the hospital.

Officers Elected.—The following officers of the West Philadelphia Hospital for Women were elected January 8: President, Dr. Anna P. Sharpless; First Vice-President, Miss F. B. Peirce; Second Vice-President, Miss Mila F. Smith; Treasurer, Miss E. Haslem; Secretary, Miss M. Sellers.

The following constitute the Board of Advisers: B. B. Comegys, J. Roberts Foulke, Thomas Scattergood and William DeCou; Solicitor, William C. Stoever. The District Physicians are Dr. Helena Goodwin, Dr. Elizabeth W. Griscom, Dr. Adelaide W. Packham and Dr. Elizabeth A. Ryder.

Harper Hospital.—The Trustees of Harper Hospital, Detroit, held their annual meeting January 8 and the following officers were elected: President, S. M. Cutcheon; Vice-President, J. L. Hudson; Secretary, Bryant Walker; Treasurer, C. A. Black; Chief of Staff, E. L. Shurly. M. C. Strong was reappointed superintendent and Mrs. L. E. Gretter principal of the Farrand Training School. The following additions to the medical staff were made: consulting physician, Dr. Charles Douglass; attending physicians, Drs. D. S. Campbell and J. J. Mulheron; consulting oculist, Dr. L. Connor; attending oculist, Dr. G. E. Frothingham, Jr.; neurologists, Drs. C. W. Hitchcock and David Inglis; assistant laryngologist, Dr. C. D. Anderson; gynecologist, Dr. N. P. Manton, in place of Dr. Helen F. Warner.

Insane Hospital Report.—The Indiana Central Hospital for the Insane made its annual report to the Governor January 8. The estimated value of the buildings and real estate is $1,450,000, and the appraised value of the personal property is $202,696.59. The financial statement shows the expenditure for the year $259,924.19, or $75.81 less than the amount appropriated. The hospital has turned $2,191.45 into the State treasury during the year.

The number of patients treated in the twelve months was 992 women and 912 men. Deaths to the number of 105 occurred, and 286 patients discharged. The superintendent has made many permanent improvements, including several thousand feet of cement walks, the building of a new kitchen, the renovating of buildings, tunnels and cellars, and the sinking of three driven wells. He has made changes in all the departments, has built sewers, a new barn and torn out old buildings. He recommends that a pavilion for contagious diseases be erected, also a cold-storage room, and a furnace for destroying rubbish.

Wilkesbarre, Pa., City Hospital.—The annual election was held January 6.

Medical Staff—consulting physicians, (ex-officio directors,) Dr. I. E. Ross and J. B. Crawford; attending physicians, Dr. J. A. Murphy, Dr. G. W. Guthrie, Dr. R. Davis, Dr. O. F. Harvey, Dr. L. I. Shoemaker, Dr. A. G. Fell.

Associate Physicians—Dr. W. S. Stewart, Dr. Charles Long, Dr. J. T. Howell, Dr. Ernest Buckman, Dr. W. G. Weaver, Dr. J. T. Matlack.

Ophthalmologist, Dr. L. H. Taylor; registrar, Dr. G. Maris Gibson; resident physician, Dr. Walter C. Kyte and Dr. J. E. Robins; committee on nurses' training school, Mrs. C. M. Conyngham, G. M. Reynolds, Dr. Lewis H. Taylor, Dr. O. F. Harvey; head nurse and principal of training school, Miss C. B. Wicks; lecturers, nurses' training school, Drs. Harvey, Shoemaker, Fell, Guthrie, Taylor and Stewart.

The Building Committee reported that the new building was proceeding as fast, if not faster than the contract calls for, and unless something unseen comes, the contractor will turn over the wards to the officers a month ahead of time. There are ten pupils in the nurses' training school, and a cooking school is to be opened this month, with a skilled nurse-cook from Boston.

Dr. Rutledge of West Indianapolis, was severely injured by being thrown from his buggy January 13. He sustained a severe fracture of the knee.

The Kentucky School of Medicine began its 38th annual session January 3, with 208 matriculates. The faculty propose the erection of a hospital building 100 by 60 feet four stories in height, adjoining the College.

Are Now Weeklies.—The *Kansas Medical Journal* and the *Philadelphia Polyclinic* are now issued weekly, instead of monthly as heretofore. Their courage and enterprise should be rewarded.

The Washington State Board of Medical Examiners held the regular semi-annual meeting in Seattle on January 2, at which time twelve of the twenty-three applicants who appeared for examination were rejected. The Board has revoked the granting of temporary permits to practice until the regular dates for the examinations.

National Dispensatory.—Our readers will be interested to learn that a new edition of the National Dispensatory by Lea Brothers & Co., is announced. It will include all the changes made necessary by the new Pharmacopœia. Professor Charles Caspari of Baltimore, succeeds the late Professor Maisch in the section of the work heretofore prepared by that *savant*.

Smallpox Cadaver.—A smallpox cadaver was discovered in the dissecting room of the Bellevue Hospital Medical College January 9. The body proved to be that of a man who died at Blackwell's Island Charity Hospital January 2. It was carried to the Bellevue Hospital morgue instead of the contagious disease morgue and when unclaimed, was turned over to the Hospital authorities as a suitable subject for dissection.

A Four Years' Course at Jefferson Medical College.—At a meeting of the Faculty of Jefferson Medical College held on Jan. 8, 1894 it was unanimously resolved to institute a compulsory four years' course with the session of 1895-96. This step was taken in order that the large clinical service of the Jefferson College Hospital (350 cases a day) might be utilized to the fullest extent in carrying out the desire of the Faculty to provide advanced medical education of practical character.

Dr. Louis E. Atkinson of Mifflintown, Pa., for ten years a member of the House of Representatives from the Eighteenth Congressional District, will be a candidate for the nomination for Governor at the next State Republican Convention, and will shortly make a formal announcement of his candidacy. The Doctor is a cripple and walks on crutches. He was defeated for the nomination for Congress in his district two years ago by Congressman Mahon of Chambersburg, and has since been quietly at his home in Mifflintown.

Chemic Glassware.—The Board of General Appraisers at New York have decided, in the matter of the protest of Eimer and Amend, heard Oct. 25, 1893, that 1, crystallizing dishes made of thin, Bohemian glass and used for crystallizing salts, chiefly in laboratories; 2, glass beakers, or dishes with glass covers, used exclusively for growing bacilli germs therein; and 3, glass mortars and pestles, such as are chiefly used in laboratories, are commercially known as "chemical glassware," and when for use in laboratories, are dutiable at 45 per cent. ad valorem.

National Guard.—Dr. Joseph D. Bryant, Surgeon-General of the National Guard of the State of New York, has reported to National Guard Headquarters a list of the medical equipments and appliances which he recommends are needed for fully supplying the surgeons, hospital stewards and the members of the recently organized Hospital Corps with practical apparatus.

The list represents an expenditure of about $5,000. Adjutant-General Porter states that the various instruments will be purchased as soon as possible, though there may be some delay, owing to manufacturers not keeping such a large stock on hand.

The organization of the Hospital Corps is in active progress. The Corps takes in eight men from each regiment, four men from each battalion and one man from each separate company, battery or troop.

The College of Physicians of Philadelphia, held a special meeting on the 12th inst., to consider the expediency of the compulsory reporting of phthisis pulmonalis by physicians as cases of contagious disease. The question was brought before the College at a previous meeting by Dr. Flick, who is an enthusiastic advocate of the contagiousness of tuberculosis, and who endeavored to get a resolution adopted similar to that which the County Medical Society recently passed at his instance, petitioning the City Board of Health to place pulmonary consumption upon the list of diseases, cases of which physicians must report under penalty for neglect, and also calling for a system of espionage of consumptives and the disinfection of the premises which had been occupied by fatal cases of the disease. The subject was referred to the council of the College whose report after a full discussion was adopted and the following minute made, at the special meeting: "The Council to which the resolution and the amendment, with reference to the proposed action of the Board of Health concerning tuberculosis has been referred, offers this resolution to the College:

"*Resolved*, That the College of Physicians believes that the attempt to register consumptives and to treat them as the subjects of contagious disease, would be imposing additional hardship to the lives of these unfortunates, stamping them as the outcasts of society.

"In view of the chronic character of the malady it could not lead to any measures of real value not otherwise attainable.

"That strict attention on the part of physicians in charge of the individual cases, insisting upon the disinfection of the sputum and of the rooms, on adequate ventilation, and on the separation of the sick from the well as far as possible, will meet the requirements of the situation so far as they practically can be met and better than any rules that, for diseases so chronic, can be carried out by a Board of Health.

"That the College of Physicians respectfully requests that no official action be taken in the matter by the Board of Health, except the insisting upon the disinfection of rooms in which consumptives have lived and died, in instances in which such procedure is not likely to have been adopted under the direction of the attending physician."

The discussion was opened by Dr. Owen J. Wistar and was participated in by Profs. DaCosta, Osler, Wood, Tyson, Roberts, Walker, Mays, S. Solis-Cohen and others. It will appear in an early issue of the JOURNAL, through the courtesy of the Philadelphia College of Physicians.

THE PUBLIC SERVICES.

An Army Medical Board will be in session at Washington City, D. C., during April, 1894, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before March 15, 1894, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character and habits. The candidate must be between 22 and 28 years of age, and a graduate from a regular medical college, as evidence of which his diploma must be submitted to the Board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School, beginning in November, 1894.

Further information regarding the examinations may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

GEO. M. STERNBERG, *Surgeon-General, U. S. Army.*

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from January 6, 1894, to January 12, 1894.

Capt. CHARLES E. WOODRUFF, Asst. Surgeon U. S. A., extension of leave of absence granted is further extended one month and twelve days.

First Lieut. CHARLES F. KIEFFER, Asst. Surgeon U. S. A., is granted leave of absence for two months, on surgeon's certificate of disability, with permission to leave the Department of Dakota.

First Lieut. EDWARD L. MUNSON, Asst. Surgeon U. S. A., is relieved from duty at Jefferson Bks., Mo., and will report in person to the commanding officer, Ft. Assiniboin, Mont., for duty at that post.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Jaanuary 6, 1894.

FRANK C. COOK, Washington, D. C., commissioned an Asst. Surgeon in the Navy, Jan. 4, 1894.

LETTERS RECEIVED.

(**A**) Ancker, A. B., St. Paul, Minn.; Adkinson, L. G., New Orleans, La.; Atkinson, W. B., Philadelphia, Pa.

(**B**) Blodgett, F. Jr., New York, N. Y.; Bates & Morse Adv. Agency, New York, N. Y.; Bowman, F. C., Duluth, Minn.; Bassett, M. F., Quincy, Ill.; Beebe, E. W., (2) Milwaukee, Wis.; Bigelow, J. M., Albany, N. Y.; Boynton, M. E., Pelham, Mass.; Battle & Co., St. Louis, Mo.; Brown, E. J., Minneapolis, Minn.; Bates, J. H. Advertising Agency, New York, N. Y.; Brown, C. F., St. Peter, Minn.

(**C**) Cushing, H. K., Cleveland, Ohio; Coates, T., Russelville, Chester Co., Pa.; Castle, Wilmot & Co., Rochester, N. Y.; Clark, E. S., San Francisco, Cal.; Cochran, Jerome, Montgomery, Ala.; Carter, J. M. G., Waukegan, Ill.

(**D**) Dios Chemmical Co., St. Louis, Mo.; Dawson, J. L., Charleston, S. C.; Dodson, B. F., Berlin, Wis.; Dunglison, R. J., (3) Philadelphia, Pa.

(**E**) Ellegood, Robt. G., Concord, Del.

(**F**) Fisher, W. A., Chicago, Ill.; Ferguson, A. H., Winnipeg, Can.; Ferguson, F., New York, N. Y.

(**G**) Goss, J. H., Athens, Ga.

(**H**) Hawkins, A. Co., New Orleans, La.; Hall, M. D., Bloomington, Ill.; Hitzel, Gustave A., Buffalo, N. Y.; Hibbard, G. W., Nashville, Tenn.; Hauge American Peeke Co., New York, N. Y.; Harris, E. H., Grinnell, Iowa; Harrell, R. F., Ruston, La.

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